370

CONTENTS

SAMS PHOTOFACT* SET No. 370

*TRADEMARK

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L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TRADE NAME	MODEL	SET AND FOLDER NO.
Admiral	T170, T171, N, T172AL, T173AL, T1710 (Ch. 14YP3D, DK, DM) Tel. Rec.	370-1
Bulova	310 Series, 320 Series	370-2
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Emerson	867B (Ch. 120349B)	370-4
Firestone	4-A-163 (Code 297-6-623)	370-5
Hoffman	BG1151, U, B1161, U, B3201, U, K1151, U, MG1151, U, M1161, U, M3201, U, P1151, U, SP1161, U, SP3201, U, W1161, U, W3201, U (Ch. 323, U) Tel. Rec.	370-6
Lincoln-Mercury	78BL (HHK-18805-A), 78BM (FEK-18805-D)	370-7
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Magnavox (Cont)	CTA487DC, ED, CTA490DC, ED, CTA491DC, ED, CTA499DC, ED, CTA501DC, ED, CTD495DC, ED, CTE493DC, ED (117 Series) Tel. Rec.	370-8
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ADMIRAL
CHASSIS 14YP3D, DK, DM

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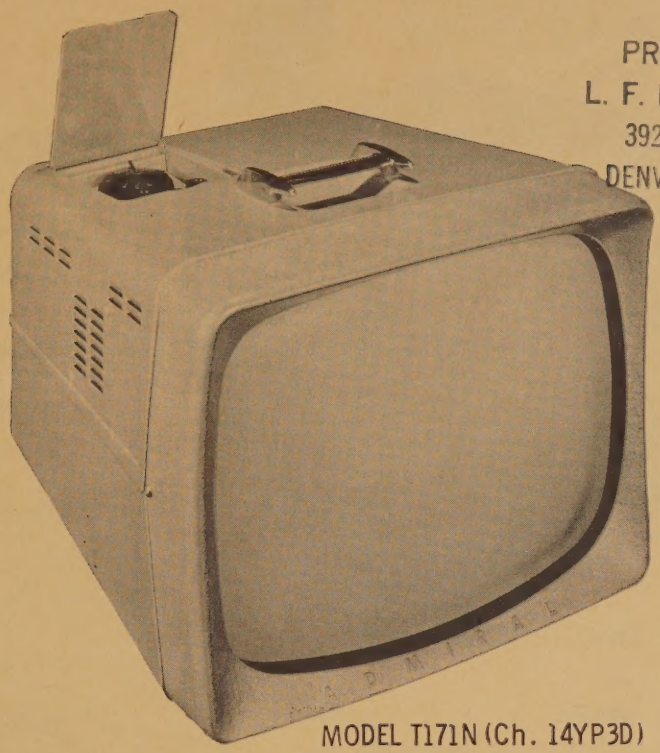

MODEL T171N (Ch. 14YP3D)

ADMIRAL
CHASSIS 14YP3D, DK, DM

TRADE NAME	Admiral	Models	Chassis
		T170, T171, T171N, T172AL, T173AL, T1710	14YP3D 14YP3DK 14YP3DM
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Ill.		
TYPE SET	Television Receiver		
TUBES	Fourteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 135 Watts, 1 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13, Video IF 25.75MC, Sound IF 21.25MC (Intercarrier)		

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CHASSIS 14YP3D, DK, DM

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DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 push on type control knobs from the top.
2. Remove 2 metal screws and the control cover.
3. Remove 8 metal screws and the rear cover.
4. Remove 2 speaker leads, the picture tube socket, ion trap and yoke clamp.
5. Loosen the rear adjustable foot until the chassis can clear it for removal.
6. Remove 4 chassis bolts from the bottom.
7. Partially remove the chassis and yoke; remove the HV lead and remove the chassis.
8. Remove 2 speaker nuts and the speaker.

MODEL T171N (Ch. 14YP3D)

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

MODELS	CHASSIS
T170, T171, T171N, T172AL, T173AL, T1710.....	14YP3D 14YP3DK 14YP3DM

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Remove 5 push on type control knobs from the top. Remove 2 metal screws and the control cover. Set the fine tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 metal screws from the bottom and 1 from each side holding the front of the cabinet. Pull the bottom of the front out and swing up to remove.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 2 or 6 and 10. Readjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The horizontal frequency coil is used as the horizontal hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location, see tube placement chart.)

FUSES

A 10Ω fusible resistor R82 is used for LV power supply protection. (For location, see tube placement chart.)

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

ADMIRAL
CHASSIS 14YP3D, DK, DM

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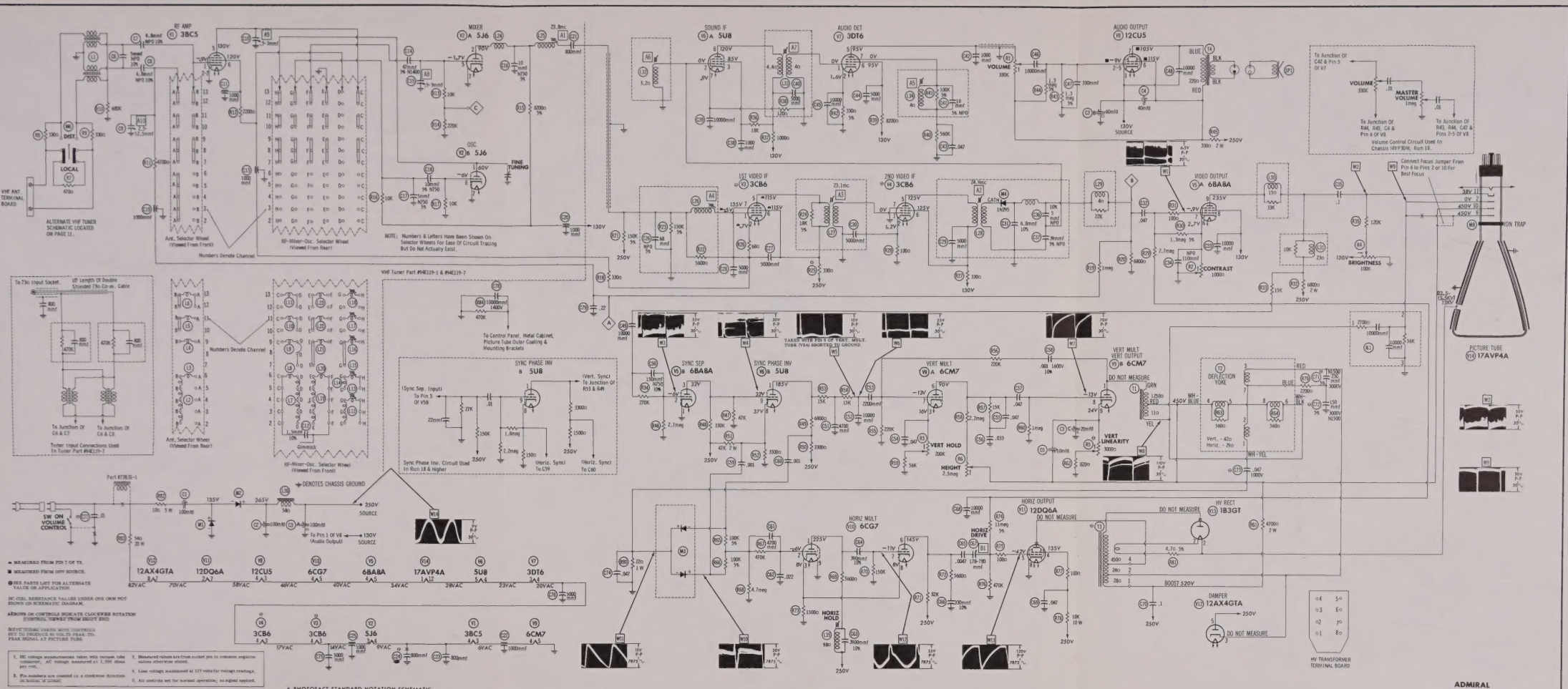

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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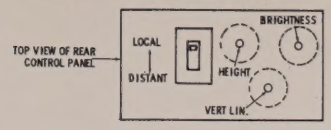
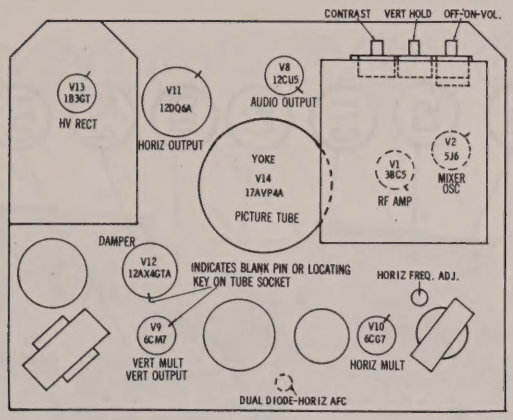
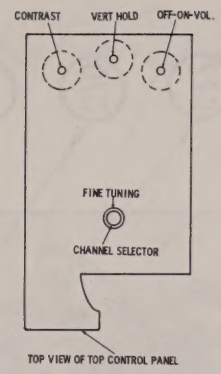
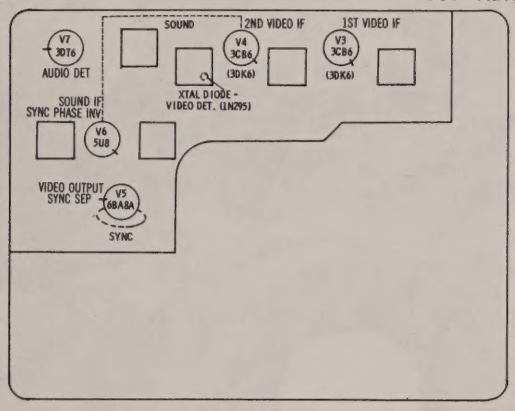
TUBE PLACEMENT CHART







TOP VIEW



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TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

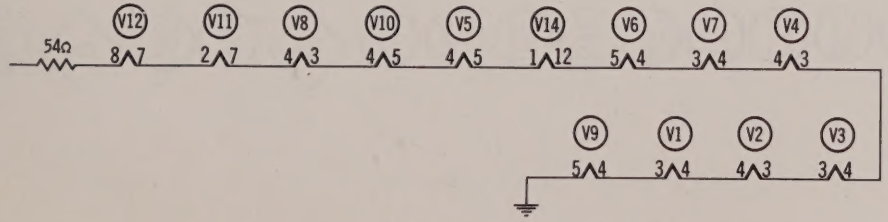
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R82), Rectifier (M1, M2)**

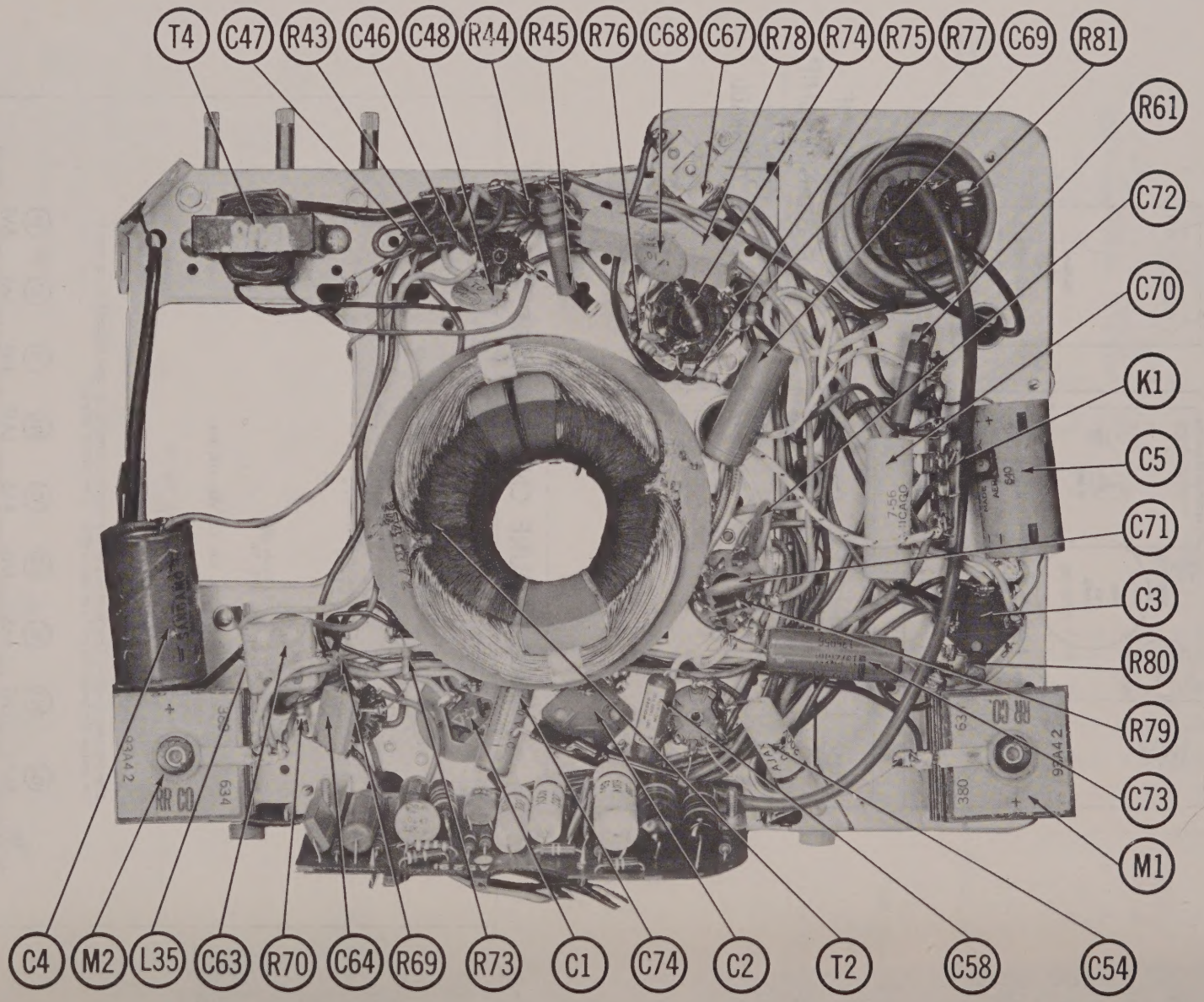
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, Diode (M4), V8**
No pic, no sound, has snow - **V1, V2, V8**
No pic, has sound, has raster - **V5, V14, V8**
Has pic, no sound - **V6, V7, V8**

SYNC FAILURE
No vert. sync - **V5, V6**
No horiz. sync - **V5, V6, Diode (M3)**
No vert. or horiz. sync - **V5, V6**

SWEEP FAILURE
No raster, has sound - **M3, V10, V11, V12, V13, V14**
No vertical deflection - **V9**
Poor vert. linearity or foldover - **V9**
Poor horiz. linearity or foldover - **V10, V11, V12**
Narrow picture - **V10, V11, V12, M1, M2**
Vert. off freq. - **V9**
Horiz. off freq. - **V10**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below.)





CHASSIS-BOTTOM VIEW

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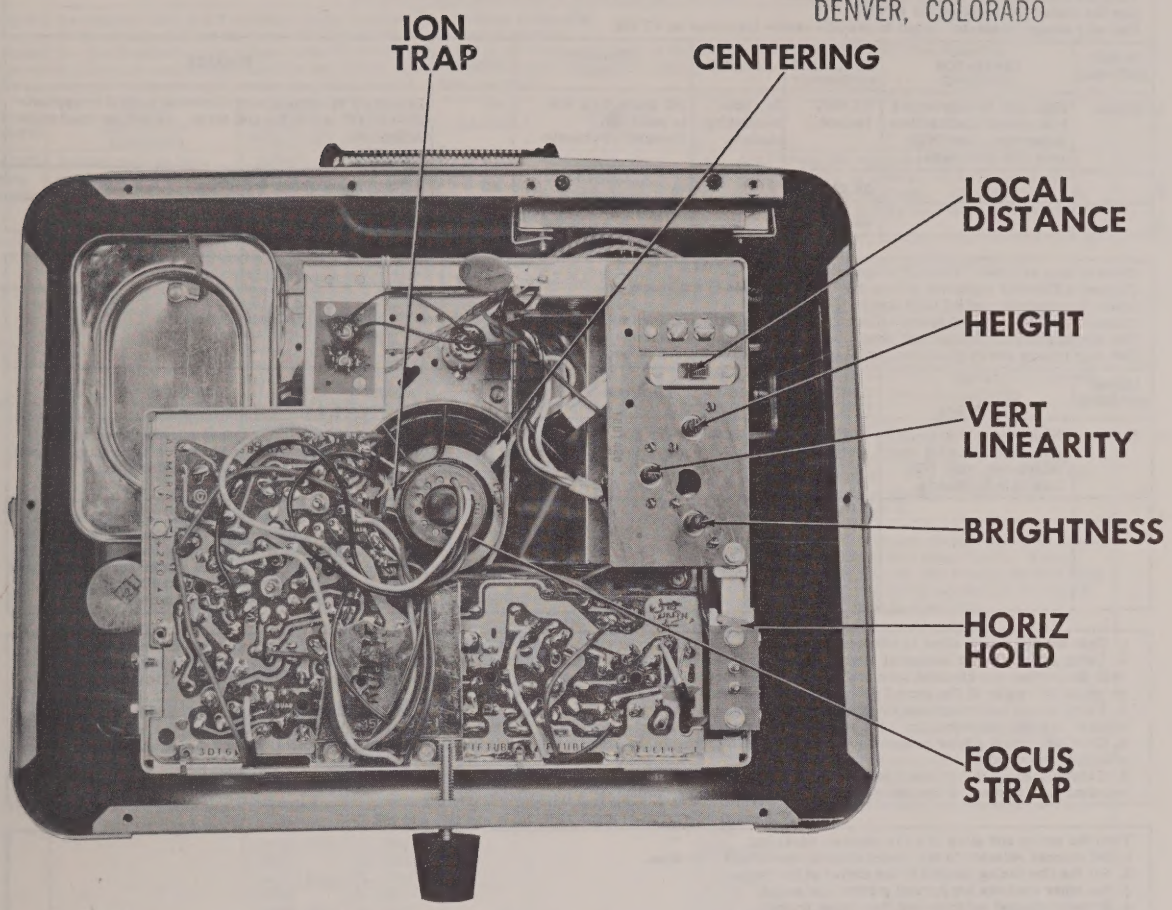


CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.

2. Set the brightness and contrast controls for a normal picture.

3. Turn the horizontal hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

4. Turn the horizontal hold slowly counter clockwise until the picture just falls into sync.

5. Turn to an unused channel. If vertical lines appear near the center of the screen, slowly adjust the horizontal drive trimmer (B1) until white lines disappear.

6. If in step 5 the horizontal drive was adjusted, tune in a TV station and repeat steps 3 and 4. Check horizontal sync by switching off channel and back again.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT:
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point (A). Positive to chassis.
Disconnect the antenna and connect a short across the antenna terminals but do not short to chassis.
Connect a 270MMF capacitor across the input of the VTVM.
Turn the contrast control fully counter clockwise.
Use the lowest DC scale on the VTVM.
Use only enough generator output to provide usable indication on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V2). Low side to chassis.	23.8MC (unmod.)	Any non-interfering channel.	DC probe thru 10K to point (B). Common to chassis.	A1	Detune A4 by turning slug clockwise until it is approximately 1/8" out of the coil form. Adjust for maximum deflection.
2.	"	"	24.9MC	"	"	A2	Adjust for maximum deflection.
3.	"	"	23.1MC	"	"	A3	"

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Connect a 270MMF capacitor across the input terminals of the scope.
Leave the contrast control fully counter clockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V2). Low side to chassis.	23MC (10MC Swp)	23.5MC	Any non-interfering channel	Vert. Amp. thru 10K to point (B). Low side to chassis.		Check for response curve similar to Fig. 1 with marker as shown. If necessary, repeat steps 1 thru 3 for desired response.
5.	"	"	"	21.25MC 23.5MC 25.75MC 27.25MC	"	"	A4	Turn A4 counter clockwise to reduce peak and broaden band width of curve to resemble Fig. 2. If necessary, alternately adjust A3 and A4 for proper response curve and proper marker positions. Dotted line in Fig. 2 shows permissable variations.

SOUND IF ALIGNMENT

1. Turn the set on and allow 15 minutes warm-up period. Tune in the strongest TV station in the area. Set all controls for normal operation.
2. Using a non-metalic hexagonal alignment tool, turn A5 very slowly clockwise until a buzz is heard in the sound. Then turn counter clockwise until the loudest and clearest sound is heard. There may be two points at which the sound is loud, (approximately ½ turn apart). The slug should be set at the center of the second point of loud sound noted as the slug is turned clockwise.
3. Using an attenuator between the antenna and antenna terminals reduce the input signal until a considerable amount of hiss is heard in the sound similar to super regeneration. The signal may also be reduced by disconnecting the antenna lead and placing it in the vicinity of the terminals.
4. Carefully adjust A6 for clearest sound and MINIMUM noise in the sound. If the hiss disappears during alignment, reduce the signal still further until the hiss returns.
5. Carefully adjust A7 for the clearest sound and MINIMUM hiss. If this alignment has been carefully made, no further adjustment should be necessary. However, if the sound is still distorted and noisy, repeat the entire alignment.

OSCILLATOR ALIGNMENT FOR TUNERS # 94E119-1 and 94E119-7

Turn the set on and allow 15 to 20 minutes warm up.
1. Set channel selector to the lowest channel operating in the area.
2. Set the fine tuning control to the center of its range.
3. Set other controls for normal picture and sound.
4. Remove channel selector and fine tuning knobs.
5. Using a 1/8 inch blade, non-metalic alignment tool, carefully adjust the oscillator slug for best picture and sound. (This is not necessarily the point of loudest sound.) If two slugs are visible at the front of the tuner, adjust the one nearest the rear of the set. Repeat this procedure for the remaining stations, adjusting them in order of the channel number from the lowest to the highest.

RF AND MIXER ALIGNMENT FOR TUNERS # 94E110-1 and 94E119-7

Connect the negative lead of a 2.5 volt bias supply to point (A). Positive to chassis.
Disconnect the antenna and set the Local-distant switch to Distant position.
If a separate marker generator is used, loosely couple to the antenna terminals.
Do not remove bottom shield while performing alignment.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable indication on VTVM.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	201MC (10MC Swp)	199.25MC 203.75MC	11	Vert. Amp. thru 15K to point (C). Low side to chassis.	A8, A9	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown.
7.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A10	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. Recheck step 6.
8.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 3. If markers fall below 70% on any high band channel, make compromise adjustment of A8 and A9 with tuner set to that channel. If markers fall below 70% on any low band channel, make compromise adjustment of A10 with tuner set to that channel. Check all other channels to see that they have not been seriously affected.
			207MC (10MC Swp)	205.25MC 209.75MC	12			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

ALIGNMENT INSTRUCTIONS (cont)

OSCILLATOR ALIGNMENT FOR TUNER # 94E128-1

1. Turn the set on and allow 15 to 20 minutes warm up.
2. Set the channel selector to the highest channel operating in the area. Set other controls for normal picture and sound.
3. Set the fine tuning control at the center of its range by turning in one direction approximately two turns, then in the opposite diresction one quarter turn.
4. Remove channel selector and fine tuning knobs. Remove the control panel door and panel assembly.
5. Using a 1/8th inch blade, non-metalic alignment tool, carefully adjust the proper channel screw for best picture. (Note: this is not the point of loudest sound.) Repeat procedure for remaining channels, making adjustments from the highest channels to the lowest.

RF AND MIXER ALIGNMENT FOR TUNER # 94E128-1

Connect the negative lead of a 3 volt bias supply to point (A). Positive to chassis.
Disconnect the antenna and set the Local-Distant switch to the Distant position.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point (D). Low side to chassis.	A11, A12, A13	Check for response similar to Fig. 3 with markers as shown. All is adjusted for maximum amplitude. A12 and A13 are adjusted for proper bandwidth and marker position.
10.	"	"	177MC (10MC Swp)	175.25MC 179.75MC	7	"	A14, A15	Adjust for curve similar to Fig. 3.
11.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"	A16	Check for response similar to Fig3. If necessary, readjust A13 for proper shape of curve. Adjust A16 (ground lead of capacitor) for proper bandwidth. To broaden bandwidth, move lead nearer mixer ground strap and vice versa.
12.	"	"	177MC (10MC Swp)	175.25MC 179.75MC	7	"	A17	Check for response similar to Fig. 3. If bandwidth is too broad, move lead (A17) closer to capacitor body. If too narrow, move lead away from capacitor body. Use care so as not to disturb bandwidth of channels 6 thru 2.
13.	"	"	207MC (10MC Swp)	205.25MC 209.75MC	12	"		Check for response similar to Fig. 4 making sure it falls within these limits. If not, make compromise adjustments by repeating steps 9 thru 12 being careful not to disturb other channels in operation.
			201MC (10MC Swp)	199.25MC 213.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
14.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	*A18 *A19 *A20	Check for response similar to Fig. 3. If necessary, adjust (by compressing or expanding coil turns) coils whose "A" numbers are proceeded by (*) for maximum amplitude. Adjust others for proper tilt and marker positions.
15.	"	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"	*A21, A22, A23	"
			69MC (10MC Swp)	67.25MC 71.75MC	4		*A24, A25, A26	"
			63MC (10MC Swp)	61.25MC 65.75MC	3		*A27, A28, A29	"
			57MC (10MC Swp)	55.25MC 59.75MC	2		*A30 A31, A32	"

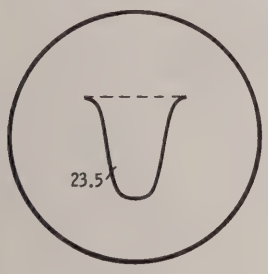


FIG. 1

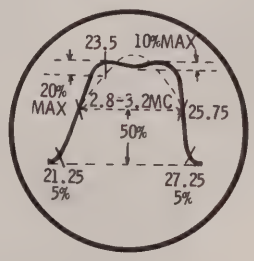


FIG. 2

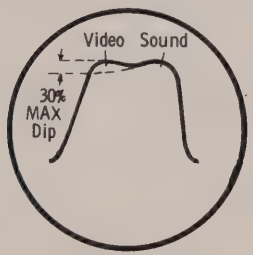
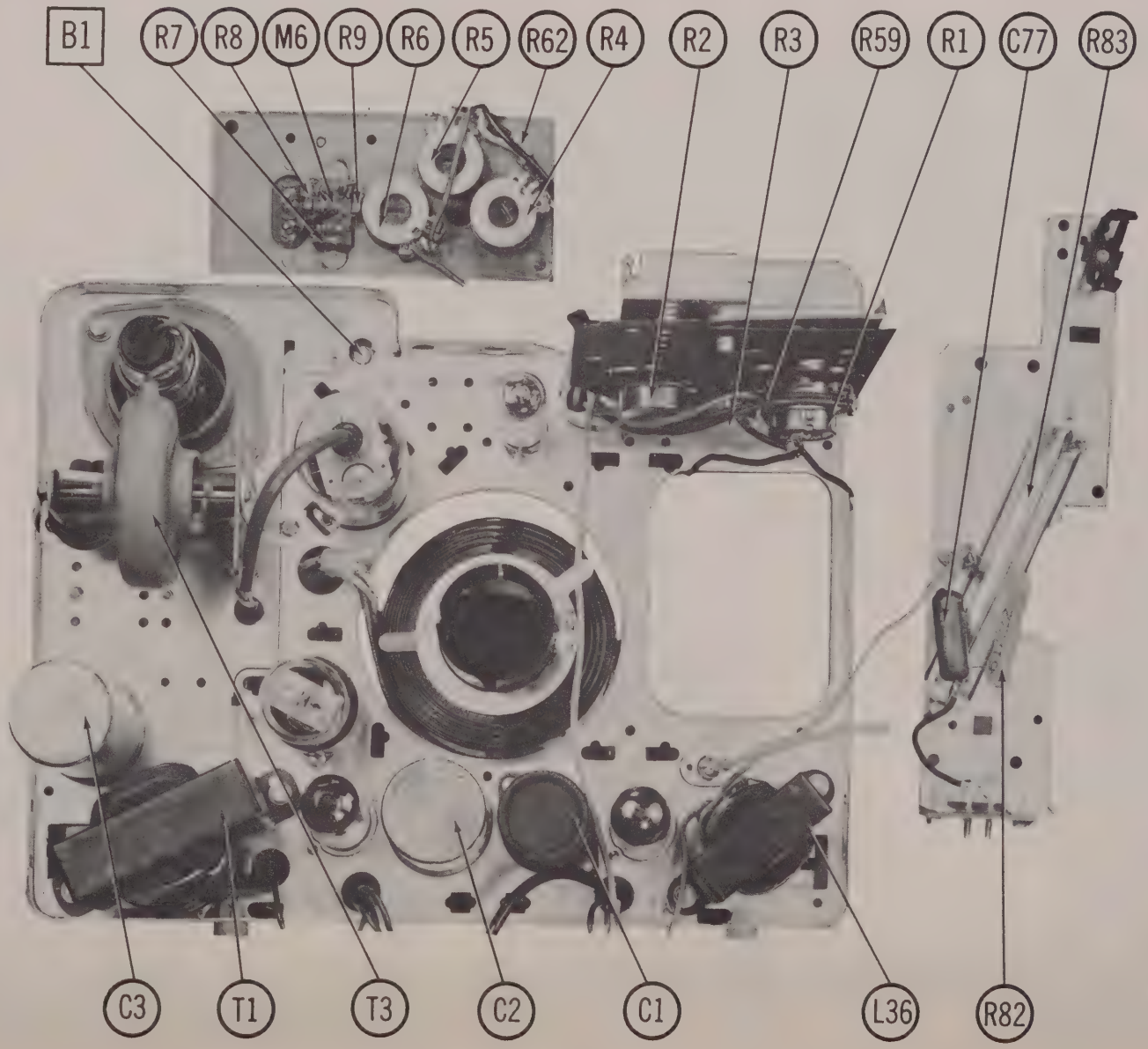
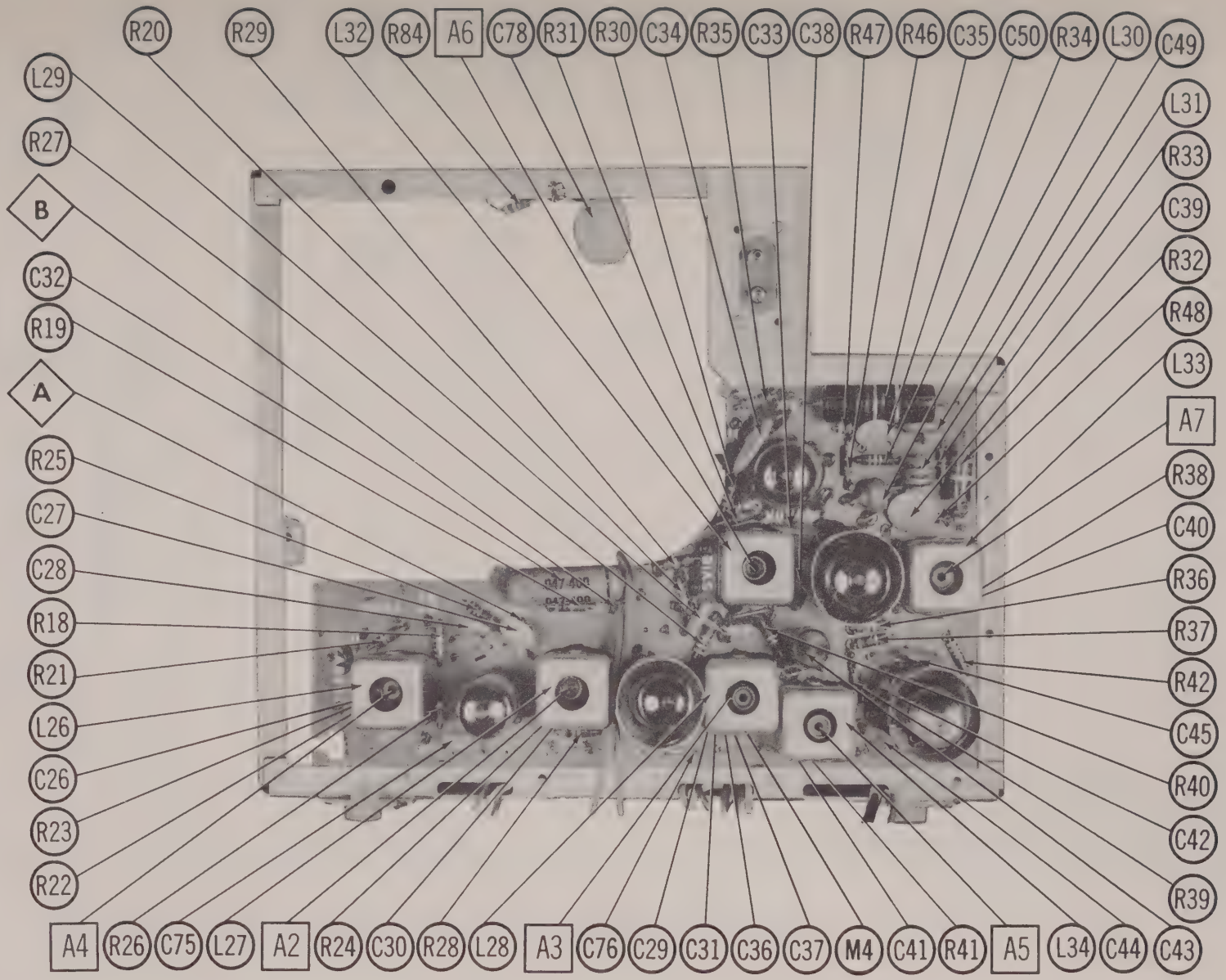


FIG. 3

FIG. 4



CHASSIS TOP VIEW



VIDEO IF PRINTED BOARD

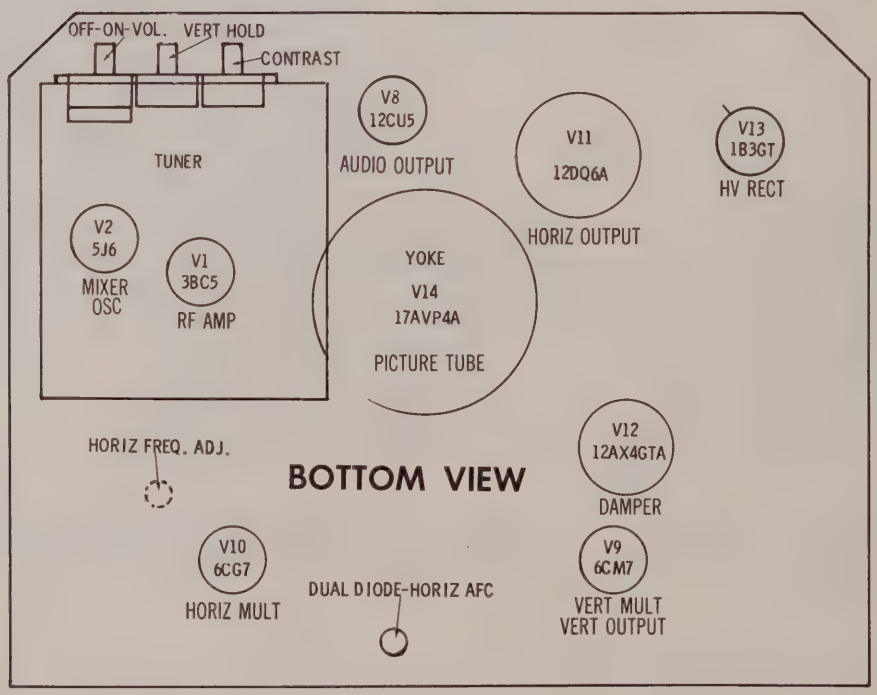
14YP3D, DK, DM

ADMIRAL CHASSIS

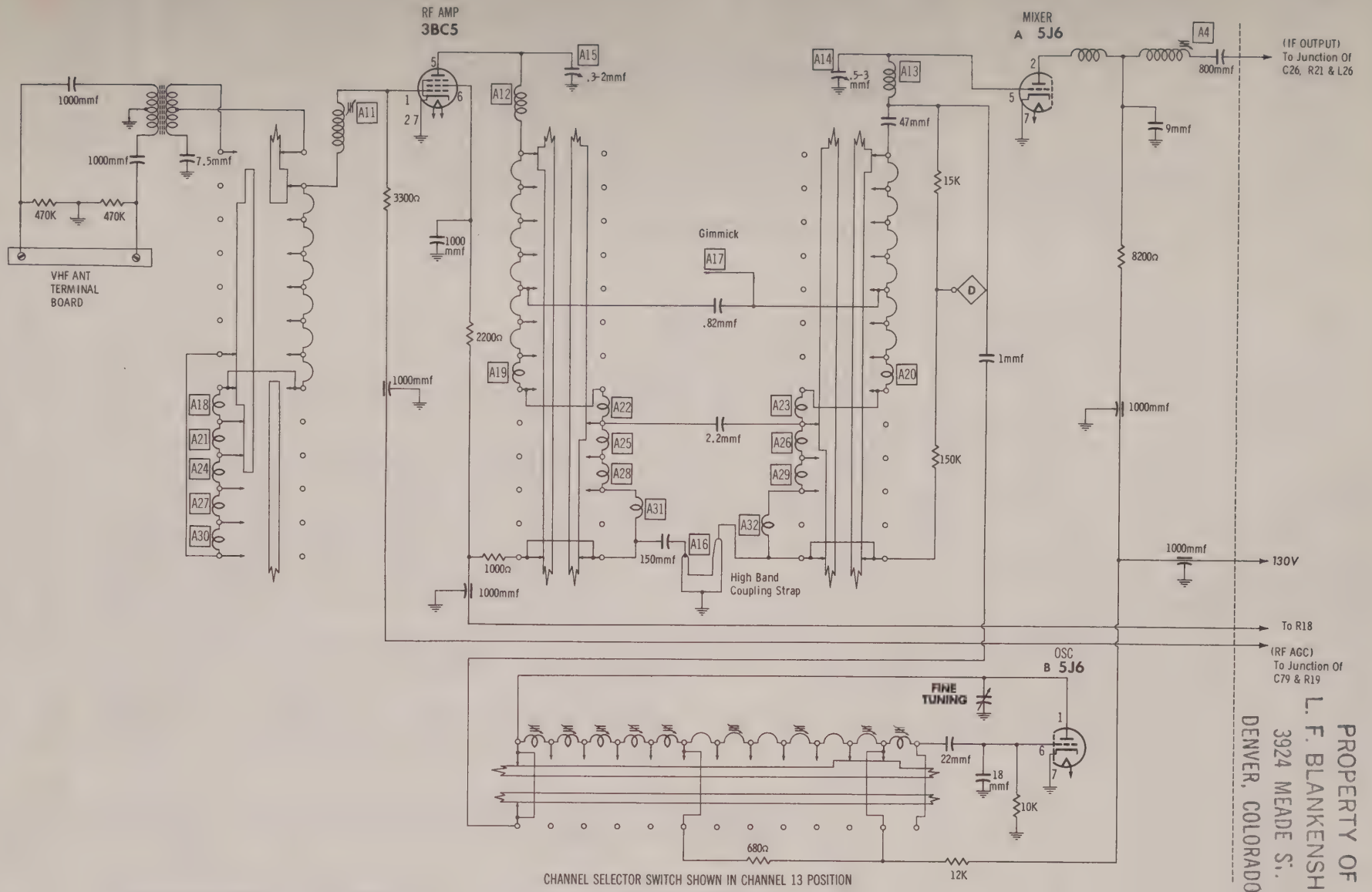
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BC5	1Meg	0Ω	1.5Ω	2.5Ω	▲ 330Ω	▲ 2500Ω	0Ω		
V2	5J6	■ 10K	■ 8200Ω	3.5Ω	2.5Ω	230K	10K	0Ω		
V3	3CB6	▲ 5600Ω	▲ 68Ω	3.5Ω	4Ω	† 390Ω	† 390Ω	75K		
V4	3CB6	.4Ω	100Ω	4Ω	4.5Ω	■ 330Ω	■ 330Ω	0Ω		
V5	6BA8A	0Ω	2.7Meg	† 60K	9.5Ω	8Ω	● 900Ω	1.1Meg	■ 0Ω	† 6900Ω
V6	5U8	† 10K	3.2Ω	■ 19K	5.5Ω	6.5Ω	■ 1000Ω	120Ω	3000Ω	† 60K
V7	3DT6	4Ω	330Ω	5.5Ω	4.5Ω	† 330K	■ 8200Ω	560K		
V8	12CU5	¶	620K	11Ω	13.5Ω	620K	† 390Ω	† 610Ω		
V9	6CM7	‡ 6000Ω	NC	● 150K	1.5Ω	0Ω	● ‡ 3Meg	220K	1Meg	1500Ω
V10	6CG7	† 5700Ω	550K	1500Ω	11Ω	9.5Ω	† 82K	150K	1500Ω	0Ω
V11	12DQ6A	TP	15Ω	TP	† 10K	420K	TP	13.5Ω	0Ω	TOP CAP ‡ 24Ω
V12	12AX4GTA	TP	TP	¶	NC	† 58Ω	TP	15Ω	18Ω	
V13	1B3GT		PINS	1 THRU 8	HAVE	INFINTE	RESISTANCE			TOP CAP ‡ 474Ω
V14	17AVP4A	8Ω	56K	PIN 6 ‡ 4700Ω	PIN 10 ‡ 4700Ω	PIN 11 130K	PIN 12 6.5Ω			

■ MEASURED FROM 130V SOURCE.
▲ MEASURED FROM PIN 7 OF V3.
† MEASURED FROM OUTPUT OF M2.
‡ MEASURED FROM PIN 3 OF V12.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION.
TP TIE POINT



TUBE PLACEMENT CHART



CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION

VHF Tuner Part #94D128-1

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

ALTERNATE TUNER SCHEMATIC

14YP3D, DK, DM

ADMIRAL CHASSIS

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	R.F. Amplifier	3BC5	
V2	Mixer-Oscillator	5J6	
V3	1st. Video I.F. Amp.	3CB6	Note 1
V4	2nd. Video I.F. Amp.	3CB6	Note 1
V5	Video-Output-Sync Sep. Sound-IF Amp.-Sync Phase Inv.	6BA8A	
V6		6U8	

ITEM No	USE	TYPE	NOTES
V7	Audio Det	3DT6	
V8	Audio Output	12CU5	
V9	Vert. Mult-Vert. Output	6CM7	
V10	Horiz. Mult.	6CQ7	
V11	Horiz. Output	12BQ6A	
V12	Damper	12AX4GTA	
V13	HV Rectifier	1B3GT	

Note 1. A 3DK8 used in later versions

PICTURE TUBE

ITEM No	REPLACEMENT DATA			NOTES
	ADMIRAL PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V14	17AVP4A	17AVP4A 17AVP4 21AFP4A 21AFP4	2 ①, Aluminized 2 Silver screen 85	

ELECTROLYTIC CAPACITORS

ITEM No	RATING CAP	VOLT	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	100	150	87D85-183	AFH1-35	XA0241	FP150	TMS-32	S-090	TVL-1433
C2	100	300	87D85-324	AFH51-30-06	AO340	FP139.1	TMS-51	S-190	TVL-1750
C3A	4000	300	87D85-426	AFH3-150-40	CO320	FP335	TMQ-137	T-375	TVL-8548.5
B	4000	150			BR6015				
C	120	50							
C4	60	200	87A55-3	PR3550V40	BR4085	TC53	TD-40-350	FM-3540	TVA-151U
C5	40	500	87A4-34	PR3500V10	BR1350	TC52	TD-10-500	MT-5010	TVA-1962

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING CAP	VOLT	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C6	5		65D10-108	MP0-SI 5	TCZ-5	C10Y5C	TCO-3	ZT-555	5TCCB-V5	10% NPO
C7	6.8		65D10-26	MP0-SI 6.8	TCZ-6R8	C10Y6RC	TCO-6.8	ZT-5568	5TCCB-V6R8	10% NPO
C9	6.8		65D10-26	MP0-SI 6.8	TCZ-6R8	C10Y6RC	TCO-6.8	ZT-5568	5TCCB-V6R8	10% NPO
	2.5		66A38-5							
	10.5									
C10	5.3		66A38-6	839-3		31S-D	CT565A	58K-D		
C11	.001	600	61B26-5	EF-001	MFT-1000			56C-D	5GA-T5	
C12	1.5		65D26-015	MP0-SI 1.5	TCZ-1R5	C10Y15C	TCO-1.5	ZT-5515	5TCCB-V15	10%
C13	1000		65D26-6	EF-001	MFT-1000				503C-D1	5% N1500
C14	47		65D10-73							
C15	5.3		66A38-6	839-3		31S-D	CT565A			
C16	15		65D10-50	N750-SI 10	TCN-10	C10Q1U	TCT-10	NT-541	5TCU-Q1	5% N750
C17	5		65D10-32	N750-SI 5	TCN-5	C10Y5C	TCT-5	NT-555	5TCU-V5	5% N750
C18	10		65D10-50	N750-SI 10	TCN-10	C10Q1U	TCT-10	NT-541	5TCU-Q1	5% N750
C19	1200		65D26-5	EF-001	MFT-1000				503C-D1	
C20	1200		65D26-5	EF-001	MFT-1000				503C-D1	
C21	900		65D10-20	BPD-0008	BA10D8	L10T8	ED-800		5GA-T8	
C22	1000		65D26-5	EF-001	MFT-1000				503C-D1	
C23	800		65D10-20	BPD-0008	BA10D8	L10T8	ED-800		5GA-T8	Note 1
C24	1000		65D26-5	MFT-001	MFT-1000				503C-D1	
C25	68		65D10-97	MP0-SI 68	TCZ-68	C10Q68C	TCO-68			5% NP0
C27	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C28	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C29	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C30	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C31	6.8		65D26-068	MP0-SI 6.8	TCZ-6R8	C10Y6RC	TCO-6.8	ZT-5568	5TCCB-V6R8	
C32	.047	200	64C25-34	BPD-06	DF-503	CUB24S	BYA881	ZTM-6147	5TM-S47	
C33	10000		65D10-3	BPD-01	DD-103	BYA881	ED-01	DC511	5HK-S1	
C34	110				TCZ-110					NP0
C35	1.5	400	64C25-32	P488N-1	TCZ-1R5	CUB4P1		GEM-401	4TM-P1	
C36	5		65D10-108	MP0-SI 5	TCZ-5	C10Y5C	TCO-5	ZT-555	5TCCB-V5	10% NP0
C37	39		65C4-25	MP0-SI 39	TCZ-39	C10Q3C	TCO-39			5% NP0
C38	1000		65D10-6	BPD-001	DD-103	BYA85D	ED-0001	DC831	5HK-D1	
C39	10000		65C4-3	BPD-01	DD-103	BYA81K	ED-01	DC511	5HK-S1	
C40	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C41	10		65C4-27		TCZ-10	C10Q1SC	TCO-10			5% NP0
C42	1000		65D10-53	BPD-01	DD-103	BYA85D	ED-0001	DC831	5HK-D1	
C43	.047	200	64B16-55	BPD-06	DF-503	BC3S42		BC3S42	ACE4147	
C44	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C45	10000		65C4-4.2	BPD-01	DD-103	BYA85I	ED-01	DC511	5HK-S1	
C46	10000		65D10-3	BPD-01	DD-103	BYA85I	ED-01	DC511	5HK-S1	
C47	330		65D10-118	BPD-00033	DD-331	L10T33	ED-330	UC-5333	5GA-T33	
C48	10000		65D10-3	BPD-01	DD-103	BYA85I	ED-01	DC511	5HK-S1	
C49	10000		65C4-4.2	BPD-01	DD-103	BYA85I	ED-01	DC511	5HK-S1	
C50	150		65C4-9	N750-SI 150	TCN-150	C10Y15U	TCT-150		5TCU-T15	10% N750
C51	4700		65D10-107	BPD-0047	DD-472	BYA10D47	ED-0047		5HK-D47	
C52	10000		65C4-4.2	BPD-01	DD-103	BYA85I	ED-01	DC511	5HK-S1	
C53	2200		65D10-111	BPD-0022	DD-222	BYA10D22	ED-0022	UC-5222	5GA-D22	
C54	.047	200	64C24-9	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C55	.047	400	64C25-34	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C56	.033	600	64C24-10	BPD-03	DF-303	CUB3S33		GEM-6133	6TM-S33	
C57	.047	600	64C25-9	BPD-05	DF-503	CUB8S47		GEM-6147	6TM-S47	
C58	.001	1600	64A2-28					GEM-1621		
C59	.001	400	64C25-20	BPD-001	DD-102	CUB4DL	GP-1000	GEM-421	4TM-D1	10%
C60	.001	400	64C25-20	BPD-001	DD-102	CUB4DJ	GP-1000	GEM-421	4TM-D1	
C61	4700		65C4-21	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C62	.022	200	64C25-58	BPD-02	DD-203	CUB2S22	ED-03	GEM-2122	2TM-S22	
C63	3900		65B21-3392	.464-0039		CUB1D39			1TM-S39	10%
C64	390		65B21-391	1469-00039		SRS739			5S-339	10%
C65	.0047	600	64C23-15	BPD-0047	DD-472	CUB4D47	ED-0047	GEM-6247	6TM-D47	
C66	330		65B21-331	1469-00033		SRS733			5S-333	10%
C67	178- 780		66A10-3							
C68	1000		65D10-41	BPD-01	DD-103	BYA85I	ED-01	DC511	5HK-S1	
C69	.047	400	64C25-34	BPD-06	DF-503	CUB4S47		GEM-4147	4TM-S47	
C70	1	600	64C25-7	P488N-1	DF-104	CUB4P1		GEM-601	6TM-P1	
C71	220	3000	65D10-69							5% N1500
C72	330	3000	65D10-68							5% N1500
C73	.047	1000	64A2-30	P1088N-047	DO15-503	CUB3D47		GEM-10147	10TM-S47	
C74	.047	200	64C25-59	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C75	5000		65C4-1	BPD-005	DD-502	BYA85I	ED-005	DC525	5HK-D5	
C76	5000		65C4-1	BPD-005	DD-502	BYA85I	ED-005	DC525	5HK-D5	
C77	01	600	64A2-35	BPD-01	DD-103	CUB4S1	ED-01	GEM-611	6TM-S1	Note 2

CAPACITORS (cont)

ITEM No	RATING CAP	VOLT	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C78	10000	1600	65D10-65	P1688N-01	DD15-103	CUB1S81		GEM-1621	1STM-S1	
C79	22	200	64C 25 80	P268N-33		CUB2P33		GEM-3023	3TM-P22	

Note 1 Not used in some versions
Note 2 In chassis stamped Run 16 and higher a .047MFD ± 100% is used in this application

CONTROLS

ITEM No	RATING RESISTANCE	WATTS	REPLACEMENT DATA ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	330K	½	79C1-67	B-91	A47-500K-X	Q13-132	U48	Volume
B	Shaft			Not Req.	X98-3	Not Req.	U-36	
C	Switch			KB-1	SWS-12	TS-1	U5-36	
R2A	10000	½	79C83-82	AB-506		Q7-109	U3	Contrast
B	Shaft			AK-4		Not Req.	Not Req.	
R3A	300K	½	79D13-83	B-46	A47-300K-S	Q1-139	U43	Vert. Hold
B	Shaft			Not Req.	X98-3	Not Req.	Not Req.	
R4A	100K	½	79C20-44	AB-534	A47-100K-S	Q1-123	PTA81-	Brightness - Note 1
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R5A	3000Ω	½	79C20-42	AB-8	A47-3000-S	Q1-113	S1-8	Vert. Lin.
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R6A	2.5Meg	½	79C20-41	AB-83	A47-2.5Meg	Q1-239	SU-585	Height
					S			
B	Shaft			AK-19	RN-3	TQ	Not Req.	

Note 1. Alternate part number 75C20-43.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING OHMS	WATT	REPLACEMENT DATA ADMIRAL PART No.	IRC PART No.	NOTES
R7	470Ω		69B8-471	BTS-470	
R8	330Ω		69B8-331	BTS-330	
R9	330Ω		69B8-331	BTS-330	
R10	680K		69B8-684	BTS-680K	
R11	4700Ω		69B8-472	BTS-4700	
R12	3300Ω		69B8-332	BTS-3300	
R13	10K		69B8-103	BTS-10K	
R14	330K		69B8-334	BTS-330K	
R15	83000Ω	5%	69B7-823	BTS-8200 5%	
R16	10K		69B8-103	BTS-10K	
R17	10K		69B8-103	BTS-10K	
R18	330Ω		69B8-331	BTS-330	
R19	1Meg		69B8-105		
R20	68000Ω		69B8-683	BTS-6800	
R21	150K	5%	69B7-154		
R22	56000Ω		69B8-563		
R23	150K	5%	69B7-154		
R24	18K	5%	69B7-183		
R25	330Ω		69B7-331	BTS-330 5%	Note 1
R26	6.8Ω		69B8-68	BTS-68	
R27	330Ω		69B8-331	BTS-330	
R28	100Ω		69B8-101	BTS-100	
R29	2.7Meg		69B8-275	BTS-2.7Meg	
R30	1.5Meg	5%	69B7-155	BTS-1.5Meg 5%	
R31	100Ω		69B8-101	BTS-100	
R32	68000Ω	3	69B20-683	BTS-6800	
R33	15K		69B8-153	BTS-15K	
R34	270K		69B8-274	BTS-270K	
R35	130K		69B8-134	BTS-130K	
R36	10K		69B8-103	BTS-10K	
R37	1000Ω		69B8-102	BTS-1000	
R38	130Ω		69B8-131	BTS-130	
R39	8200Ω		69B8-822	BTS-8200	
R40	560K		69B8-564	BTS-560K	
R41	100K	5%	69B7-104	BTS-100K 5%	
R42	330Ω	5%	69B7-331	BTS-330 5%	
R43	1.3Meg	5%	69B7-135	BTS-1.3Meg 5%	
R44	1.3Meg		69B7-135	BTS-1.3Meg 5%	

Note 1. Manufacturer recommends 5% replacement.

ITEM No	RATING OHMS	WATT	REPLACEMENT DATA ADMIRAL PART No.	IRC PART No.	NOTES
R45	330Ω	2	69B20-331	BTB-330	
R46	2.7Meg		69B8-275	BTS-2.7Meg	
R47	47K		69B8-473	BTS-47K	
R48	330K		69B8-334	BTS-330K	
R49	6800Ω		69B8-682	BTS-6800	
R50	3300Ω		69B8-332	BTS-3300	
R51	47K	2	69B20-473	BTB-47K	
R52	3300Ω		69B8-332	BTS-3300	
R53	15K		69B8-153	BTS-15K	
R54	15K		69B8-153	BTS-15K	
R55	220K		69B8-224	BTS-220K	
R56	330K		69B8-334	BTS-330K	
R57	15K		69B8-153	BTS-15K	
R58	3.3Meg		69B8-335	BTS-3.3Meg	
R59	56K		69B8-563	BTS-56K	
R60	1Meg		69B8-105	BTS-1Meg	
R61	470Ω	2	69B20-472	BTB-470	
R62	6300		69B8-821	BTS-820	
R63	5600		69B8-561		
R64	560Ω		69B8-561		
R65	100K	5%	69B7-104		
R66	100K	5%	69B7-104		
R67	470K		69B8-474		
R68	4.7Meg		69B8-475		
R69	5600Ω		69B8-562	BTS-5600	
R70	150Ω		69B8-154	BTS-150K	
R71	82K		69B8-823		
R72	5600Ω		69B8-562		
R73	1500Ω		69B8-152	BTS-1500	
R74	1Meg	5%	69B7-105	BTS-1Meg 5%	
R75	100Ω		69B8-101	BTS-100	
R76	470K		69B8-474	BTS-470K	
R77	100Ω		69B8-101	BTS-100	
R78	10K	10	69B30-3	PW10-10K	
R79	1470Ω		69B8-223		
R80	22Ω	1	69B14-220		
R81	4.7Ω	5%	69B28-11	BW½-4.7 5%	
R82	10Ω	5	61A22-		
R83	54Ω	20	61B3-27		
R84	470K		69B8-474	BTS-470K	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Tried PART No.
T1	Vert. Output	79B43-10	Z1807 ①	A-3824	22871	V315 ①	A-8141	20854	A-119X
T2A	Yoke-Horiz. (68AH)	84D87-16	DF807②③	M1F-31	2350X ②	T90X10/43	DY-16A	Y-16 ②③	Y-4L
B	(90°) Vert. (97MH)			③ ①		2-3	2-3		NW2 ④
T3	Horiz. Output	78D74-2		HVO-125		X135 ⑤ ⑥	HO-234	FLY-107	
	Alt. Horiz Output	79C80-11					⑤ ⑥	⑤ ⑥	
	Alt. Horiz. Output	79C80-10							

① Drill new mounting hole(s). Cut and tape blanking lead.
② Use original rear cover and centering device.
③ Use original horizontal damping network.
④ Trim terminal board to duplicate original and use original mounting brackets.
⑤ This part may be superceded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original With Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Tried Replacement Connections
4			3	3	3	3	
2			6	6	6		
1			1	1	1	1	

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Tried PART No.	NOTES
T4	2700Ω	3-4Ω	79D33-14	Z1603 ① ②	A-3025	A-3332	26858 ①	S-12X	① Drill one new mounting hole. ② Tape tap on primary winding

SPEAKER

ITEM No	TYPE SIZE	FIELD	V C	IMP	REPLACEMENT DATA ADMIRAL PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω		78B136-1	4A0T	

COILS (RF-IF)

ITEM No.	USE	ADMIRAL PART No.	NOTES
L1	Ant. Trans.	A8337	Includes R10, C8, C7 and C5
L2	Ant. Coils	73D50-12	Channels 2-6
L3	Ant. Coils	73D50-17	Channel 6
L4	Ant. Coils	73D50-18	Channels 7-9
L5	Ant. Coil	73D50-21	Channels 10, 11
L6	Ant. Coil	73D50-23	Channels 12, 13
L7	RF Coils	73D50-19	Channels 2-6
L8	RF Coil	73D50-27	Channel 6
L9	RF Coils	73D50-8	Channels 7-9
L10	RF Coil	73D50-9	Channels 10, 11
L11	RF Coil	73D50-26	Channels 12, 13
L12	Osc. Coils	73D50-11	Channels 2, 3
L13	Osc. Coil	73D50-15	Channel 4

ITEM No.	USE	ADMIRAL PART No.	NOTES
L14	Osc. Coil	73D50-10	Channel 5
L15	Osc. Coil	73D50-16	Channel 6
L16	Osc. Coil	73D50-6	Channels 7-9
L17	Osc. Coil	73D50-9	Channels 10, 11
L18	Osc. Coil	73D50-1	Channels 12, 13
L19	Mixer Grid Coils	73D50-20	Channels 2-6
L20	Mixer Grid Coil	73D50-26	Channel 6
L21	Mixer Grid Coil	73D50-7	Channels 7-9
L22	Mixer Grid Coil	73D50-4	Channels 10, 11
L23	Mixer Grid Coil	73D50-3	Channels 12, 13
L24	R.F Choke	73D50-25	
L25	Mixer Plate Coil	72A180	

ITEM No.	USE	REPLACEMENT DATA ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L26	1st. Video IF	72C153-17				
L27	2nd. Video IF	72C153-8				Includes C31, M4, and choke (Part #73A24-8)
L28	3rd. Video IF	72C176-3				271 Microhenries, wound on 22K resistor
L29	Series Peaking Coil	78B6-6	10-4250	TV-187	1830 ①	Wound on 33K resistor
L30	Series Peaking Coil	78B35-9			6148 ②	696 Microhenries, wound on 10K resistor.
L31	Shunt Peaking Coil	78B41-1	19-3660 ②	6210 ②		
L32	1st. Sound IF	72C152-20				Includes Cap.
L33	2nd. Sound IF	72C152-18				Includes resistor and cap.
L34	Quadrature Coil	72C152-18				

▲ Parallel with 22K resistor. * Parallel with 10K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	SEC.	REPLACEMENT DATA ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	NOTES
L35	98Ω		84C17-7	19-1578 *	TV-163 *	6210 *			23B-6 *	18.6-65 Millihenries

* Enlarge mounting hole.

FILTER CHOKE

ITEM No.	RATINGS TOTAL CURRENT	D. C. RESISTANCE	INDUCTANCE @ CURRENT 1000 ᵐA	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Tried PART No.
L36	180A	58Ω	1.4 HY.	76B18-19	C3040	C-2994	C-3327	26C41	C-34X

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	ADMIRAL PART No	REPLACEMENT DATA
K1	Vert. Blanking	10000MMF, 10000MMF, 56K, 2700Ω	83C8-12	

RECTIFIERS

ITEM No	RATING CURRENT (Measured)	ADMIRAL PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	MALLORY PART No	SARKES TARZIAN PART No.	NOTES
M1	160A	83A4-2 ①	1090A ①	12N05 ②	RS3005L ②	68300 ①	300 ①	
M2	160A	83A6-2 ①	1090A ①	12N05 ②	RS3006L ②	68300 ①	300 ①	
M3		83A5-2 ①	1215 ① ④		1T1 ① ④			

① Selenium Type ② Germanium Type. ③ Horiz. Phase Det. ④ 2 Required.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA ADMIRAL PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M4	1N295		1N60	1N60	Video Det. (Pigtail)

ADMIRAL CHASSIS 14YP3D, DK, DM

PARTS LIST AND DESCRIPTIONS (Continued)

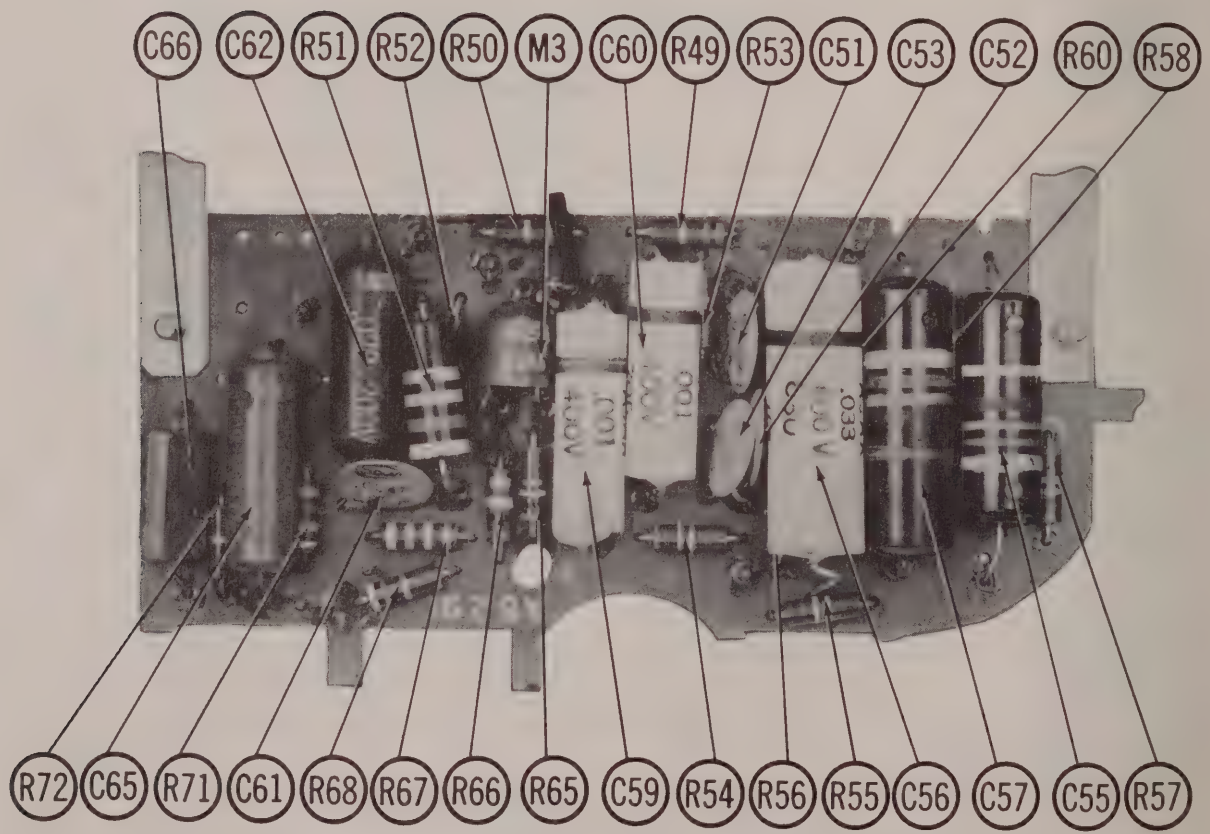
MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M5	Tuner	94E119-1	VHF - Ch. 14YP3D
	Tuner	94E119-7	VHF - Ch. 14YP3DK
	Tuner	94D128-1	VHF - Ch. 14YP3DM
M6	Switch	77B59-3	Local-Distant-Slide Type (DPDT)
M7	Centering Device	94A121-1	Includes rear yoke cover
M8	Ion Trap	94A15-5	
	Printed Board	A5291	Sync and sweep, complete with components, less tubes - Include run number when ordering
	Printed Board	A5290	Video and audio, complete with components, less tubes - Include run number when ordering

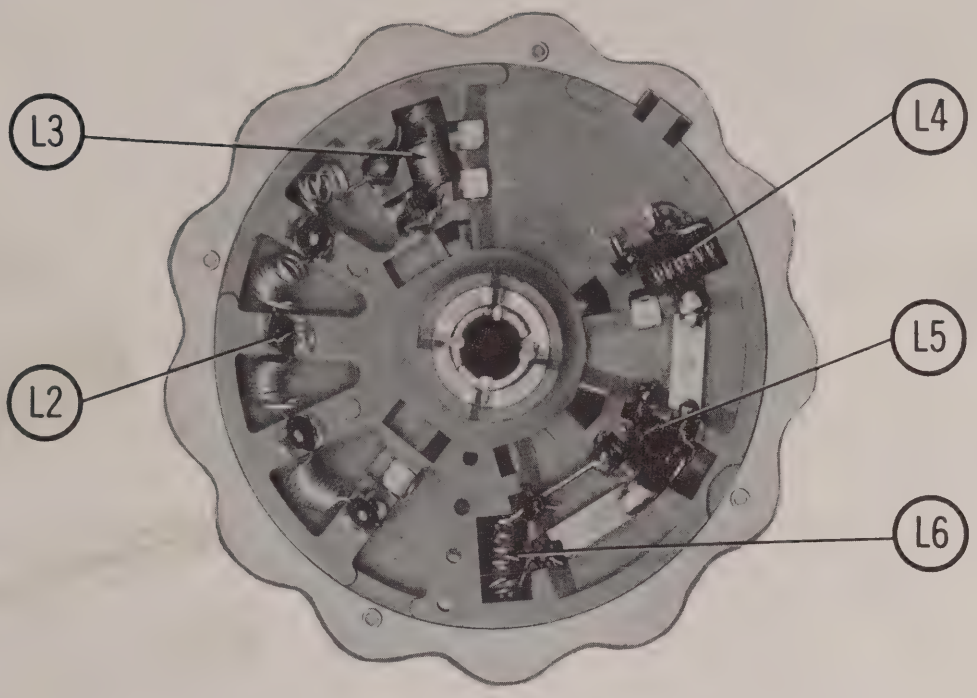
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

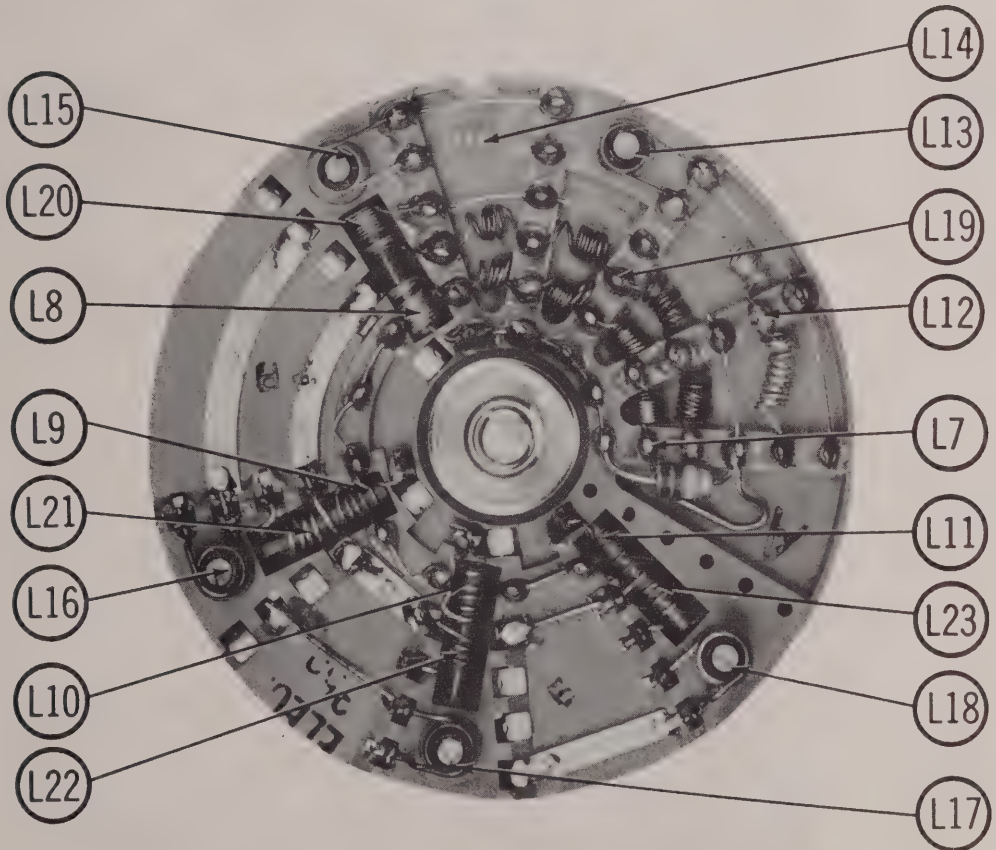
NAME	PART NO.	DESCRIPTION
Safety Glass	21D93-1	Clear - Models T170, T171, T171N, T1710
Safety Glass	21D93-2	Tinted - Models T172AL, T173AL
Bezel	23E275-5	Model T170
Bezel	23E275-1	Models T171, T171N
Bezel	23E275-2	Model T172AL
Bezel	23E275-3	Model T173AL
Bezel	23E275-6	Model T1710
Knob	33D202-20	Channel Selector - Models T170, T171, T171N, T1710
Knob	33D202-22	Channel Selector - Models T172AL, T173AL
Knob	33D202-24	Fine Tuning - Models T170, T171, T171N, T1710
Knob	33D202-25	Fine Tuning - Models T172AL, T173AL
Knob	33A175-2	On-off-volume, contrast, vert. hold - Models T170, T171, T171N, T1710
Knob	33A175-4	On-off-volume, contrast, vert. hold - Models T172AL, T173AL
Cabinet	34E109-5	Coppertone - Model T170
Cabinet	34E109-1	Silver - Models T171, T171N
Cabinet	34E109-2	Green-white - Model T172AL
Cabinet	34E109-3	Gray-silver - Model T173AL
Cabinet	34E109-6	Bronze - Model T1710



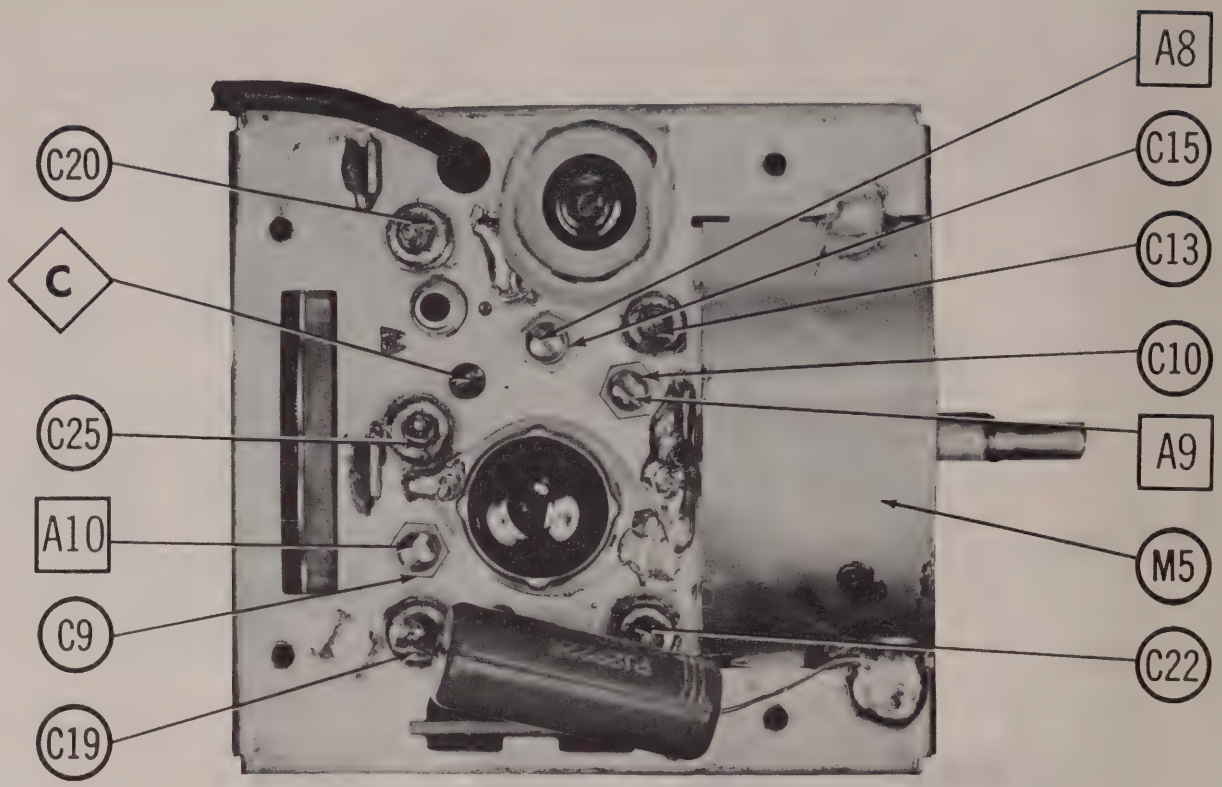
SYNC & SWEEP PRINTED BOARD



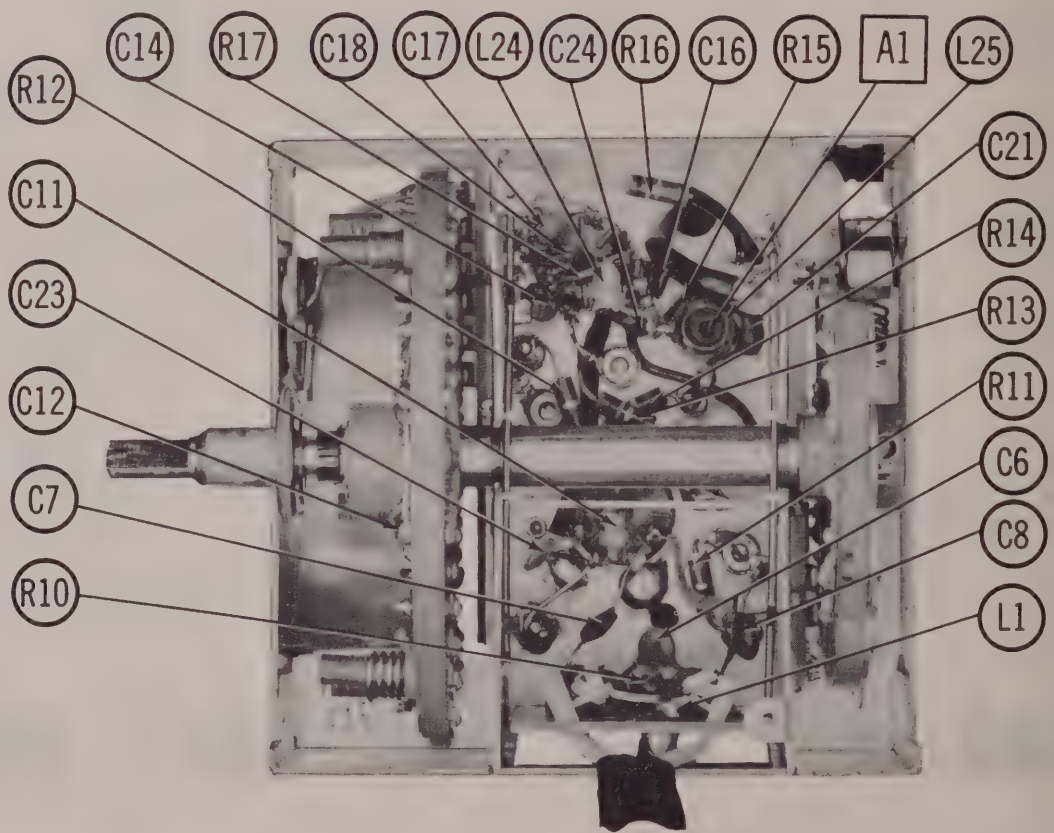
ANTENNA SELECTOR WHEEL



RF, MIXER & OSC. SELECTOR WHEEL



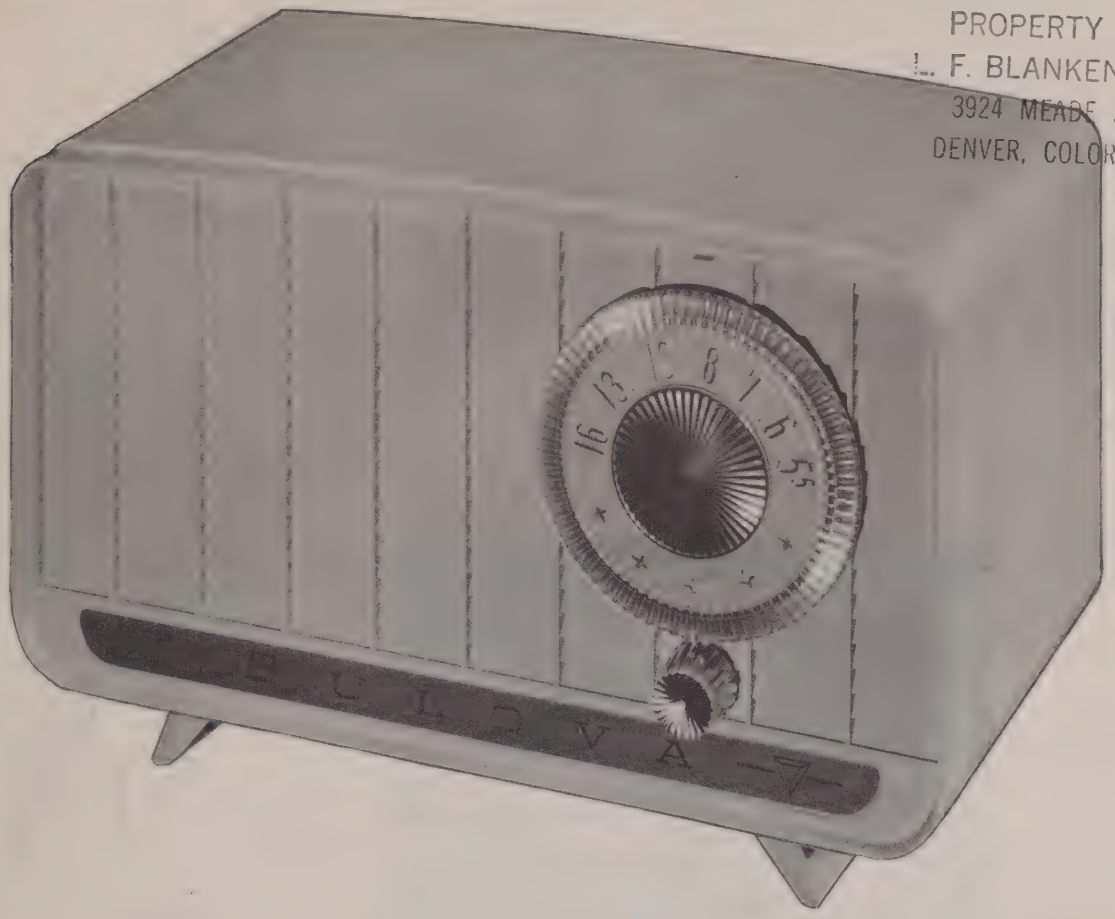
RF TUNER-TOP VIEW



RF TUNER-BOTTOM VIEW

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

BULOVA
MODELS 310 Series, 320 Series



BULOVA
MODELS 310 Series, 320 Series

TRADE NAME	Bulova Models 310 Series, 320 Series
MANUFACTURER	Electronics Guild, Inc., Sunrise Highway, Valley Stream, Long Island, N. Y.
TYPE SET	AC-DC Operated AM Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC-DC — RATING .28 Amp. @ 117 Volts AC (30 Watts)
TUNING RANGE—BROADCAST	535KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620KC	"	"	A5	"
3.		Loop	1500KC	Tune to 1500KC signal.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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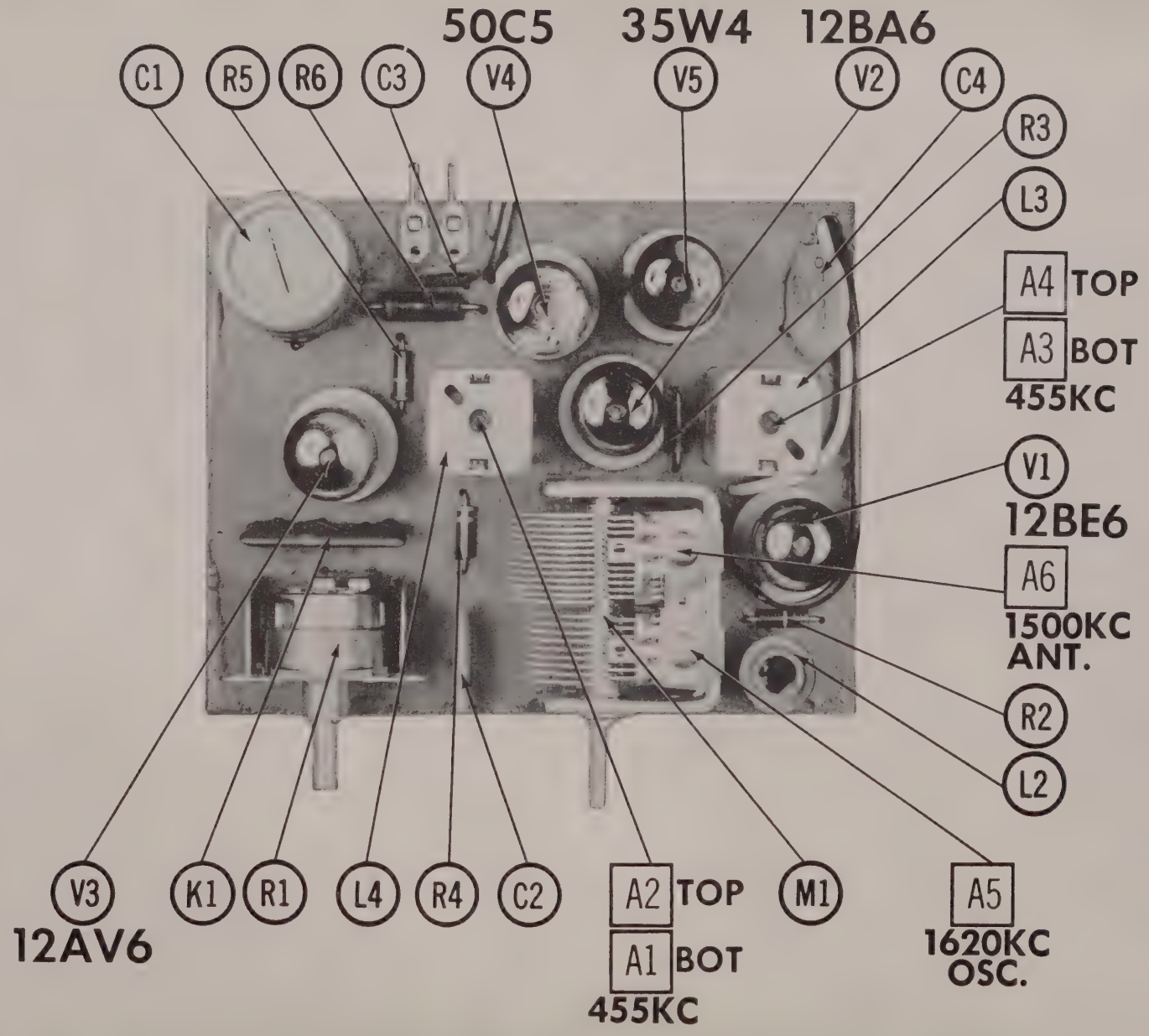


CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amplifier	12AV6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	BULOVA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	150		PRS150V5050	BBRD5515	TCD49	TDLD-9	MTD-1550	TVA-2453
B	50	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	BULOVA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C3	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C4	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	BULOVA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	500K	½	22-6					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	BULOVA PART No.	IRC PART No.	
R2	22K			BTS-22K	
R3	100Ω			BTS-100	
R4	3.3Meg			BTS-3.3Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	BULOVA PART No.	IRC PART No.	
R5	150Ω			BTS-150	
R6	1500Ω	1		BTA-1500	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	BULOVA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2600Ω	3-4Ω	7847-1	Z1101	A-3025	A-3332	26S58 ①	S-12X	① Drill New Mtg. Hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	BULOVA PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	26-7	4A1	

COILS (RF-IF)

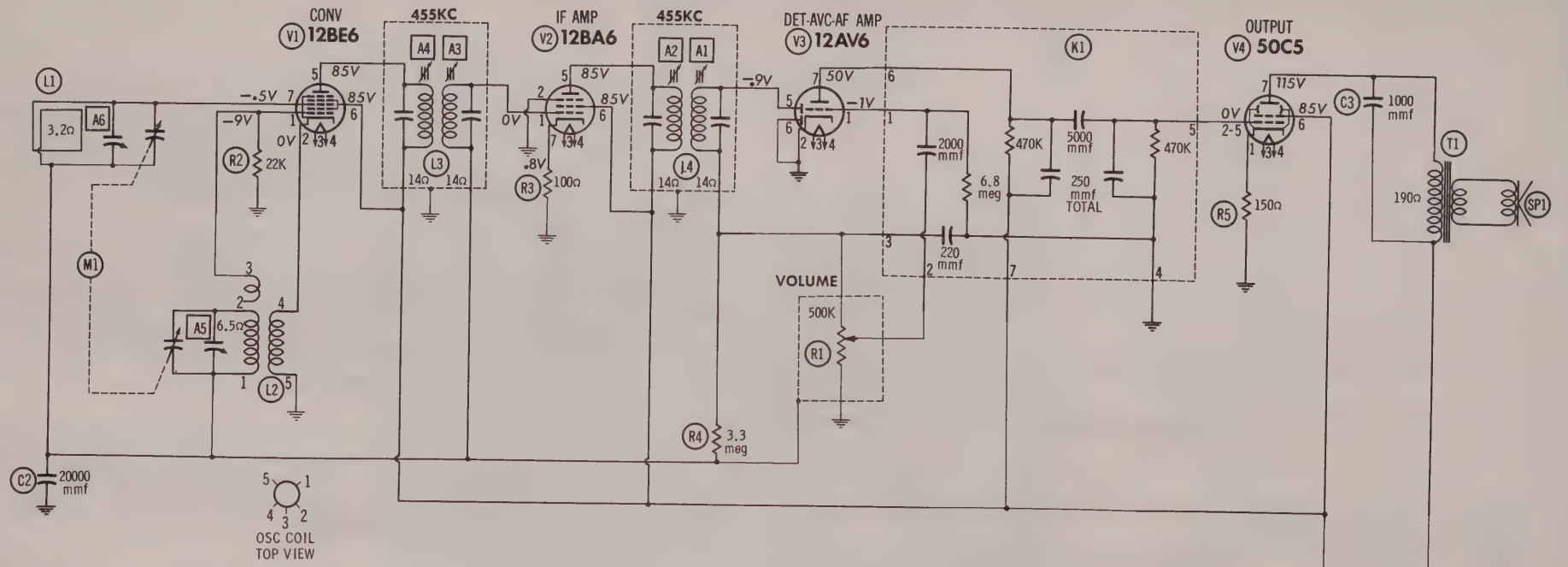
ITEM No.	USE	REPLACEMENT DATA				NOTES
		BULOVA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Antenna					Includes Cabinet Back.
L2	Osc. Coil					
L3	Input IF		16-6780	BC-356	13-PC9	
L4	Output IF		16-6780	3C-357	13-PC10	

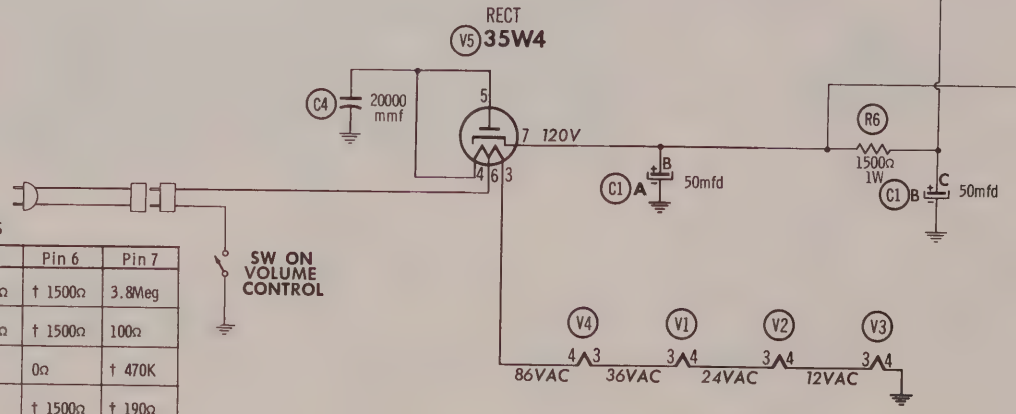
COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	BULOVA PART No.	REPLACEMENT DATA	
K1	Det. Audio Coup. Net	5000MMF, 250MMF, 2000MMF 220MMF, 470K, 470K, 6.8Meg		Aerovox	PA-113-1
				Centralab	PC-150
				Cornell-Dubilier	116TM1
				Erie	1408-01
				Sprague	DT-5

MISCELLANEOUS

ITEM No.	PART NAME	BULOVA PART No.	NOTES
M1	Tuning Cap.		2 Gang (Ant. 18-350MMF).





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.8Ω	36Ω	24Ω	† 1500Ω	† 1500Ω	3.8Meg
V2	12BA6	3.8Meg	0Ω	24Ω	12Ω	† 1500Ω	† 1500Ω	100Ω
V3	12AV6	6.8Meg	0Ω	12Ω	0Ω	500K	0Ω	† 470K
V4	50C5	150Ω	470K	36Ω	85Ω	470K	† 1500Ω	† 190Ω
V5	35W4	NC	NC	85Ω	100Ω	100Ω	95Ω	20K(MIN)

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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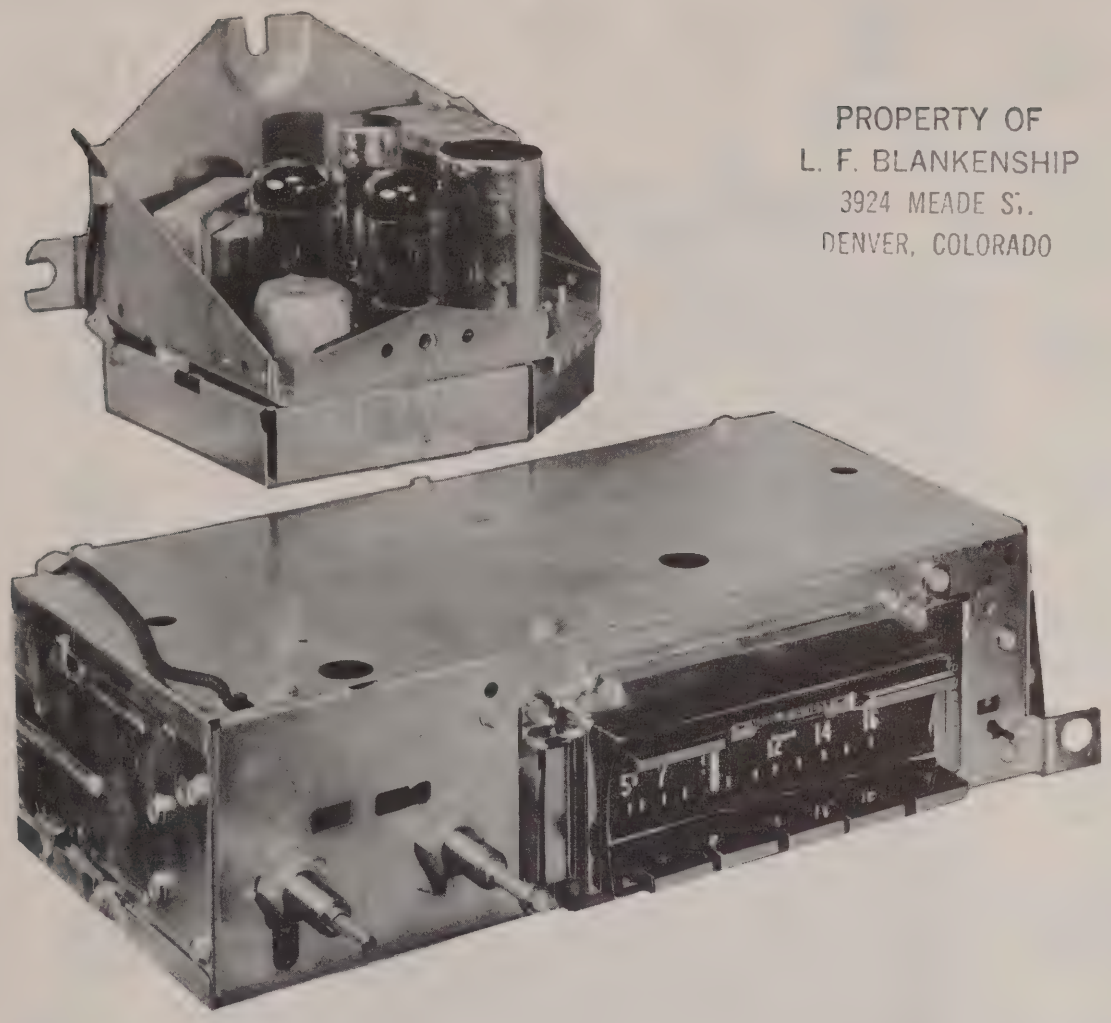
3924 MEADE ST.
DENVER, COLORADO

CADILLAC
MODELS 7268005, 7268035

CADILLAC
MODELS 7268005, 7268035



TRADE NAME	Cadillac Models 7268005 (1956 Cadillac Automobiles, 7268035 (1956 Cadillac Ambulances)	
MANUFACTURER	Delco Radio Div., G. M. Corp., Kokomo, Indiana	
TYPE SET	Battery Operated Custom Built AM Automobile Receiver	
TUBES (Eight)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12BA6 IF Amplifier, 12BF6 Det.-AVC-AF Amp., 12AU7 Trigger, (2) 12V6GT Output, 0Z4 Rectifier	
POWER SUPPLY	12 Volt Storage Battery	RATING 3.6 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC-1600Kc	

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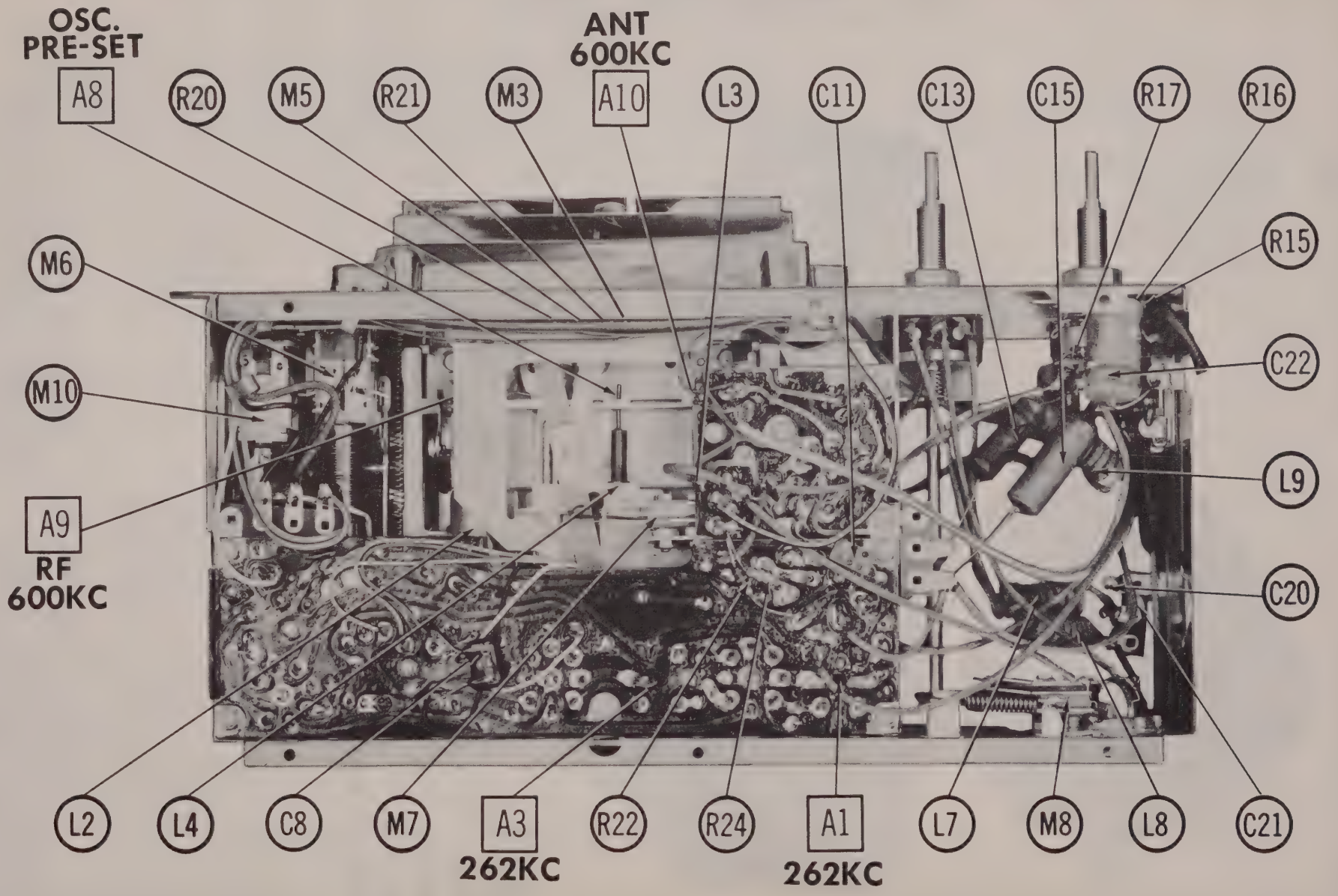
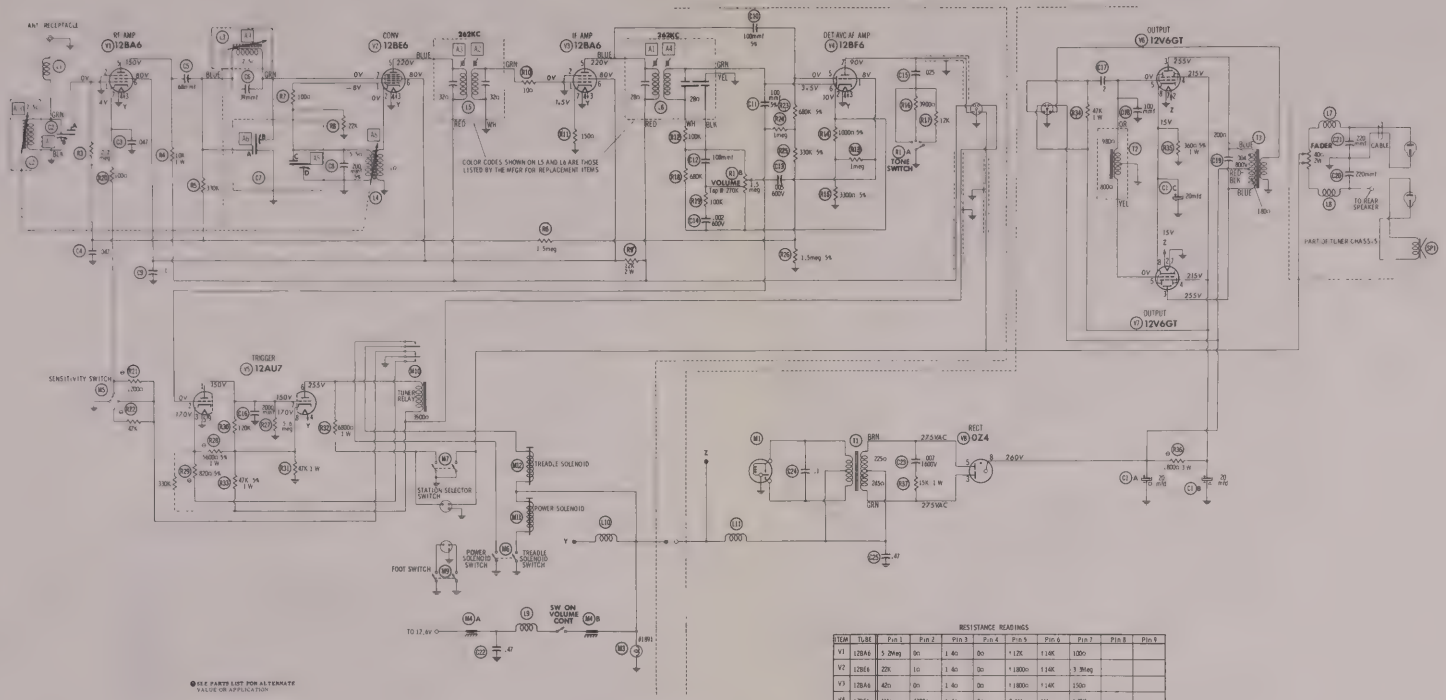


CHASSIS BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	5 2Meg	0Ω	1 4Ω	0Ω	†.12K	†.14K	100Ω		
V2	12BE6	22K	1Ω	1 4Ω	0Ω	†.1800Ω	†.14K	3.3Meg		
V3	12BA6	42Ω	0Ω	1 4Ω	0Ω	†.1800Ω	†.14K	150Ω		
V4	12BF6	1Meg	4300Ω	1 4Ω	0Ω	2 5Meg	1Meg	†.4W		
V5	12AU7	†.130K	2.8Meg	55K	1 4Ω	0Ω	†.3500Ω	5 6Meg	30K	NC
V6	12V6GT	TP	4Ω	†.700Ω	†.1800Ω	980Ω	NC	0Ω	360Ω	
V7	12V6GT	NC	4Ω	†.1800Ω	†.1800Ω	800Ω	TP	0Ω	360Ω	
V8	0Z4	8Ω	NC	285Ω	NC	225Ω	NC	TP	2200Mint	

† MEASURED FROM PIN 8 OF V8
TP TIE POINT
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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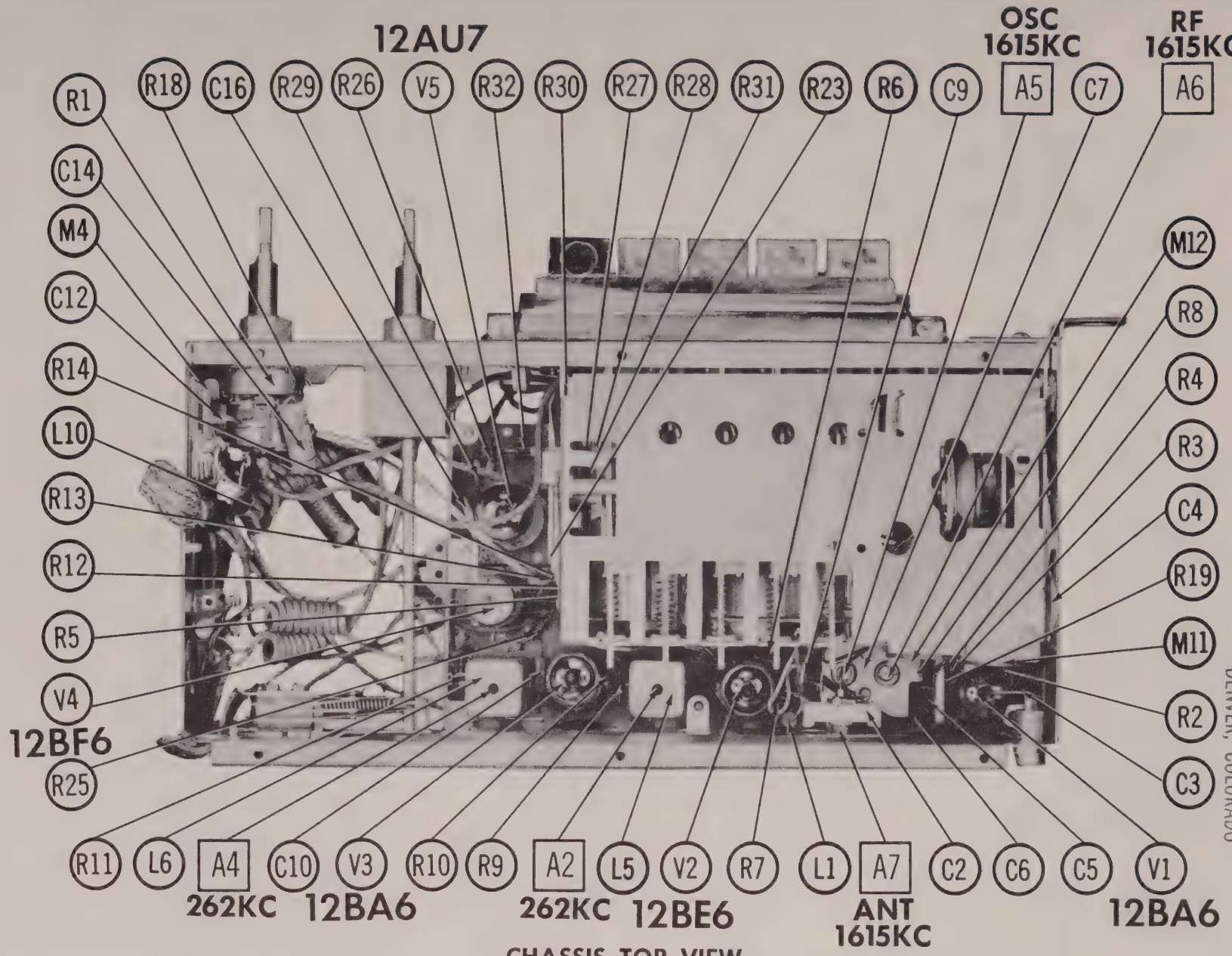


CHASSIS TOP VIEW

CADILLAC
MODEL 7268005

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

ALIGNMENT INSTRUCTIONS

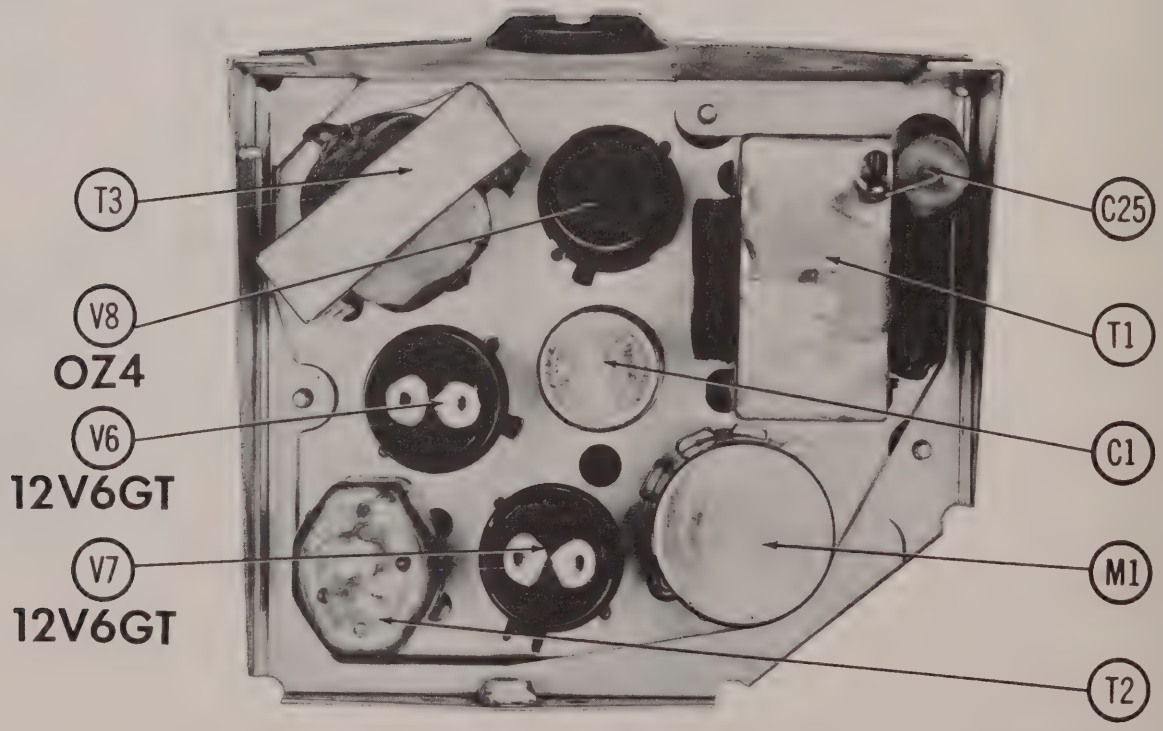
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting. Tone control to "Treble".

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1	.1MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	262KC (400∿ Mod.)	High frequency end stop	DC probe to point (A). Common to chassis	A1, A2, A3	To tune to high frequency end stop place a .012" feeler gauge (or bare #28 wire) in slot against high frequency end stop. Run planetary arm against feeler gauge by pressing station selector bar. Turn radio off and on. Adjust A1, A2, A3 for maximum deflection.
2	"	"	"	"	"	A4	Adjust for MINIMUM deflection.
	Check setting of oscillator core (A8). Rear of core should be 1 5/8" from mounting end of coil form.						
3	68MMF	High side to Antenna receptacle. Low side to chassis.	1615KC	High frequency end stop	DC probe to point (A). Common to chassis	A5, A6, A7	Adjust for maximum deflection.
4	"	"	600KC	Tune to 600KC signal	"	A9, A10	"
5	"	"	1615KC	Tune to 1615KC signal	"	A6, A7	"
6	"	"	900KC	Tune to 900KC signal	"		If necessary, adjust pointer (adj. at end of core bar guide) to coincide with 900KC on dial.
7	With radio installed in car and antenna fully extended, tune in a weak station between 600KC and 1000KC, adjust A7 for maximum volume.						

PUSHBUTTON ADJUSTMENT

1. Pull pushbutton to left and out.
2. Tune manually to desired station.
3. Press pushbutton in firmly.
4. Repeat procedure on remaining pushbuttons.



OUTPUT CHASSIS - TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12BA6	
V4	Det. -AVC-AF Amp.	12BF6	

ITEM No.	USE	TYPE	NOTES
V5	Trigger	12AU7	
V6	Output	12V6GT	
V7	Output	12V6GT	
V8	Rectifier	0Z4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■20	400	6322	AFH3-10	C0990	FP345. 8	TMT-106	T-550	TVL-3678
B	▲20	400							
C	20	25							

FIXED CAPACITORS

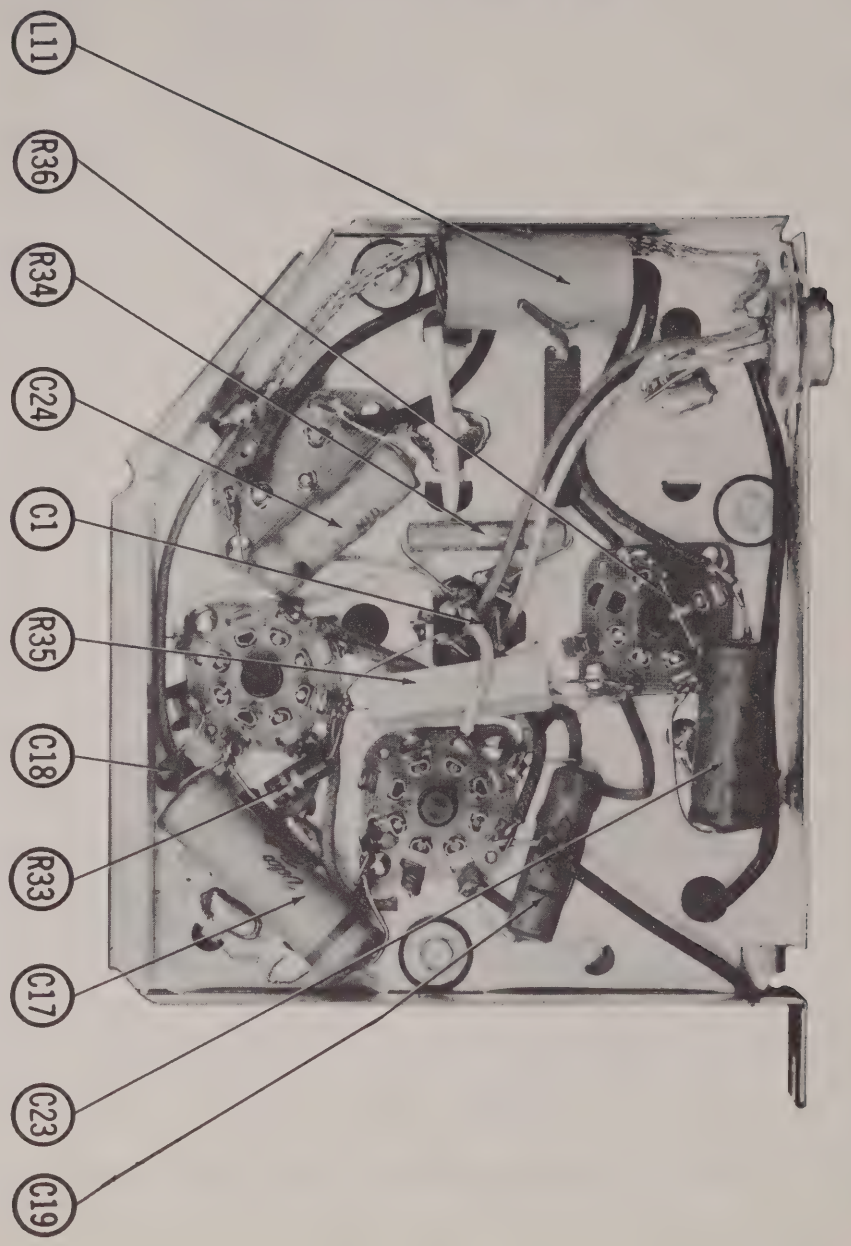
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2A			7269312							
B										
C3	.047	400	6612	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C4	.047	400	6612	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C5	68		6369	BPD-000068	DD-680	L10Q68	ED-68	UC-5468	5GA-Q68	
C6	39		6366	BPD-000039	DD-390	L10Q39	ED-39	UC-5439	5GA-Q39	
C7A										
B										
C			7268828							
D										
C8	200		7268904	1469-0002	TCZ-200	22R5T2	TCO-200		5TCC-T2	5%
C9	.1	400	6613	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C10	100	500	1219498	1469-0001	TCZ-100	22R5T1	TCO-100	ZT-531	5TCC-T1	5%
C11	100	500	1219498	1469-0001	TCZ-100	22R5T1	TCO-100	ZT-531	5TCC-T1	5%
C12	100	500	G-101	1468-0001	DD-101	5W5T1	ED-100	UC-531	5GA-T1	
C13	.005	600	6631	BPD-005	D6-502	CUB6D5	GP-5000	GEM-625	6TM-D5	
C14	.002	600	6628	BPD-002	D6-202	CUB6D2	GP-2000	GEM-622	6TM-D2	
C15	.025	400	1211232	P488N-025		CUB4S22				
C16	2000		6352	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C17	.2	400	6614	P488N-22		CUB6P2		GEM-402	4TM-P2	
C18	100		6371	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C19	.004	800	6564	P1088N-004	DD16-402	CUB10D4		GEM-1024	10TM-D4	
C20	220		6375	BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C21	220		6375	BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C22	.47	100	6692	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C23	.007	1600	6567	P1688N-007	DD16-702	CUB16D7		GEM-1627	MB-D7	
C24	.1	200	6690	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C25	.47	100	6692	P288N-47		CUB2P47		GEM-2047	2TM-P47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	Switch		7269443					Tone
B	1.5Meg	½						Volume, Tap② 270K
C	Switch							
R2	40Ω	2	7269436					Fader (Wire Wound)

OUTPUT CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA DELCO PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R3	2.2Meg		1239	BTS-2.2Meg	
R4	10K	1	1174	BTA-10K	
R5	330K		1229	BTS-330K	
R6	1.5Meg		1237	BTS-1.5Meg	
R7	100Ω		1113	BTS-100	
R8	22K		1215	BTS-22K	
R9	12K	2	1276	BTB-12K	
R10	10Ω		1101	BTS-10	
R11	150Ω		1115	BTS-150	
R12	100K		1223	BTS-100K	
R13	1Meg		1235	BTS-1Meg	
R14	1000Ω 5%		1220176	BTS-1000 5%	
R15	3300Ω 5%		1220173	BTS-3300 5%	
R16	3900Ω		1132	BTS-3900	
R17	12K		1212	BTS-12K	
R18	680K		1233	BTS-680K	
R19	100K		1223	BTS-100K	
R20	100Ω		1113	BTS-100	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA DELCO PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R21	1200Ω			BTS-1200	Note 1
R22	47K			BTS-47K	Note 1
R23	680K 5%		1220172	BTS-680K 5%	
R24	1Meg		1235	BTS-1Meg	
R25	330K 5%		1219490	BTS-330K 5%	
R26	1.5Meg 5%		1219492	BTS-1.5Meg 5%	
R27	5.6Meg		1244	BTS-5.6Meg	
R28	5600Ω 5%	1		BTA-5600 5%	Note 2
R29	820Ω 5%		7266231	BTS-820 5%	Note 3
R30	120K		1224	BTS-120K	
R31	47K	1	1259	BTA-47K	
R32	6800Ω	1	1172	BTA-6800	
R33	47K 5%	1	1220188	BTA-47K 5%	
R34	47K	1	1259	BTA-47K	
R35	360Ω 5%	1	7234563		
R36	1800Ω	3			Note 4
R37	15K	1	1253	BTA-15K	

Note 1. Not supplied separately. Included with M5 (Sensitivity Switch)
Note 2. Some versions may use 6800Ω 5% 1 Watt (Part #7266367)
Note 3. Some versions may use 750Ω 5% (Part #7266320) or 910Ω 5% (Part #7266033). Replace with original value.
Note 4. Mfgr. states to replace R36 with 2700Ω 2W (Part #1204) & 5600Ω 1W (Part #1171) connected in parallel.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12.6VCT @ 2.33A	500VCT @ .070A			7269118			P-6495 ①		

① Use original channel mounting frame.

TRANSFORMER (INPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2			1220902						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T3	8700Ω CT	3-4Ω	7266997	Z1011 ①	A-2901①	A-3870 ①	22S56 ①	S-55X①	① Use original channel mounting.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA DELCO PART No.	QUAM PART No.	NOTES
SP1	6"X9"	PM	3-4Ω	7268645	69A3	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA DELCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Ant. Coupling Coil	7255738	19-1004	BC-565	4610	6.5 Microhenries
L2	Antenna Coil	1221050				
L3	RF Coil	1221050				
L4	Osc. Coil	1221051				
L5	Input IF	1220990	16-6756	BC-317		
L6	Output IF	1220992				
L7	Speaker Choke	1217846				1.4 Microhenries
L8	Speaker Choke	1217846				1.4 Microhenries
L9	"A" Lead Choke	7241708				
L10	Fil. Choke	1217846				1.4 Microhenries
L11	Hash Choke	7269090				42 Microhenries

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA DELCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	NOTES
M1	Interrupter	12.6V	115∿	8555	6330	G1602/G883	6330	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA DELCO PART No. FUSE	DELCO PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2	SFE	7½A	455640		30307.5 (7AG-7½A)		SFE 7½A	

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M3	Dial Light		#1891
M4	Spark Plate	1220308	
M5	Switch	7269432	Sensitivity
M6	Switch	7268030	Power Solenoid-Treadle Solenoid
M7	Switch	7269872	Station Selector
M8	Switch	1221075	Antenna
M9	Switch	7264602	Foot
M10	Relay	7269582	Tuner
M11	Solenoid	7268040	Power
M12	Solenoid	7268050	Treadle

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Printed Panel	7268821	1 Tube Section
Printed Panel	7268814-C	4 Tube Section
Knob	1466056	Tone, Speaker
Knob	1466639	On-Off-Volume, Manual Tuning
Dial Glass	7269448	

EMERSON MODEL 867B (Ch. 120349B)

EMERSON MODEL 867B (Ch. 120349B)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DEN[illegible]

EMERSON MODEL 867B (Ch. 120349B)

TRADE NAME	Emerson Model 867B (Ch. 120349B)
MANUFACTURER	Emerson Radio & Phono Corp., 14th & Coles Sts. Jersey City 2, New Jersey
TYPE SET	AC Operated AM Receiver With 4 Speed Automatic Record Changer
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AT6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-60 Cycles
RATING	.28 Amp. @ 117 Volts AC (27 Watts
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.005MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal.		A6	"

FOR SERVICE INFORMATION ON RECORD CHANGER PART #819107 — SEE SIMILAR V-M MODEL 1200A — PHOTOFACT SET 353 FOLDER 16.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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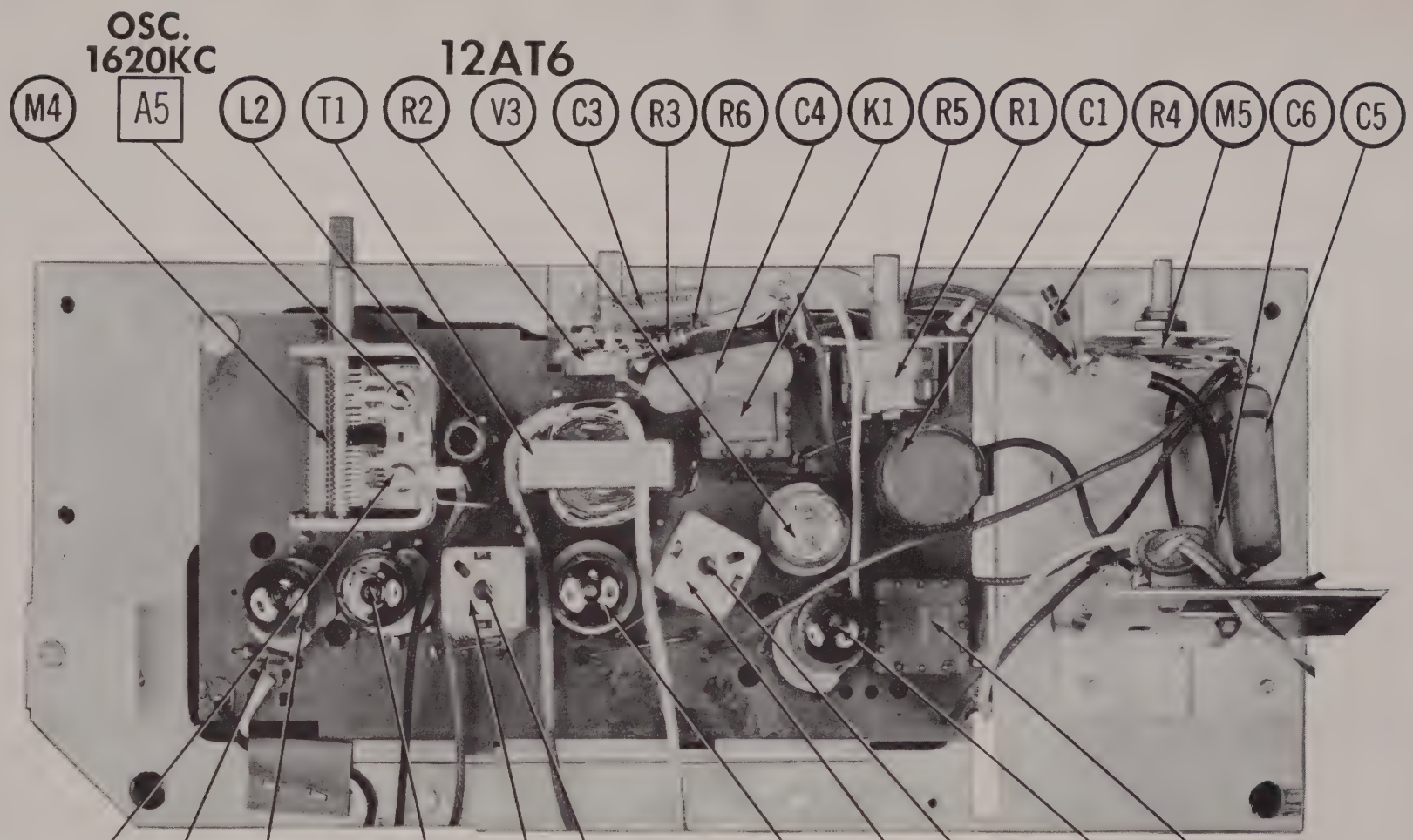


CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amplifier	12AT6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	925403 ①	PRS150V40-4020	BBRT44215	TCT3116	TDLT-4	FMT-312	R2443 *
B	40	150							
C2	4	15VNP	925391	PRS50VNP4	BBR8-150 † BBR8-150 †	TC41 † TC41 †	TD-8-150 † TD-8-150 †	MT-1508 † MT-1508 †	R2444 *

① Alternate Part #925382.
† Connect Negative Leads Together.
* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	.0047	400	923553	BPD-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C4	.047	400	923554	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C5	.047	400	923554	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C6	.047	400	923554	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA EMERSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	2Meg	1/2	390473					
R2A	500K	1/2	390474	B-59	A47-500K-S	Q11-133	U50	Volume & Switch Tone
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA EMERSON PART No.	IRC PART No.	NOTES
R3	3300Ω		340612	BTS-3300	
R4	680K		351172	BTS-680K	
R5	820Ω		340472	BTS-820	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA EMERSON PART No.	IRC PART No.	NOTES
R6	2200Ω		340572	BTS-2200	
R7	18Ω		340072	BTS-18	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA EMERSON PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2100Ω	6-8Ω	734149						

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA EMERSON PART No.	QUAM PART No.	NOTES
SP1	8"	PM	6-8Ω	180165	8A6	
SP2	3 1/2"	PM	3-4Ω	180164	3A07	
SP3	3 1/2"	PM	3-4Ω	180164	3A07	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA EMERSON PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Loop Antenna	700125				
L2	Osc. Coil	716108				
L3	Input IF	720259	16-6780	BC-356	13-PC1	
L4	Output IF	720259	16-6780	BC-357	13-PC2	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	EMERSON PART No.	REPLACEMENT DATA
K1	IF-Det. Module	330MMF, 4700MMF, 330MMF, 4700MMF, 120Ω, 22K, 6.8Meg, 2.2Meg	750011	
K2	Audio-Power Module	4700MMF, 22000MMF, 33000MMF, 2400Ω, 2400Ω, 470K, 470K, 150Ω	750010	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA EMERSON PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M1	961865 ①	55T	GD-J	56	PT-2	① Includes Needle

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA EMERSON PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2	960827	† S-66 or †♦S-66SD or ♦S-66D	† W-75TPS or †♦ W-75DS or ♦ W-75TPD	† Jewel ♦ Diamond

MISCELLANEOUS

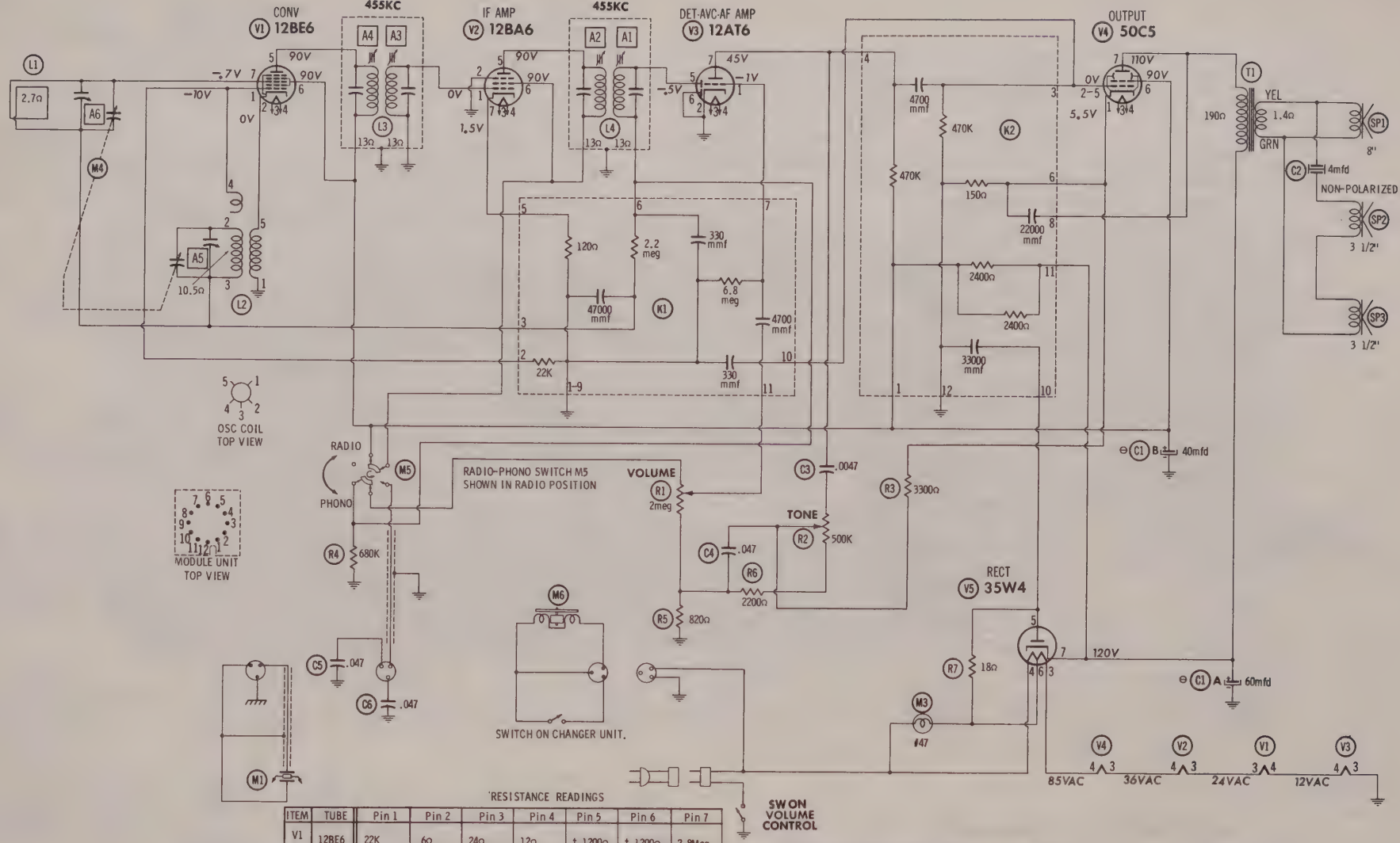
ITEM No.	PART NAME	EMERSON PART No.	NOTES
M3	Pilot Light	807000	#47
M4	Tuning Cap	900159	2 Gang (Ant. 20-295MMF)
M5	Switch	510119	Radio-Phono (Rotary Wafer Type)
M6	Phono Motor		

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	460865	Radio-Phono
Knob	460866	Tuning
Knob	460872	Control
Cabinet	140840	Mahogany
Cabinet	140840A	Blonde
Cabinet	140840B	Walnut

EMERSON MODEL 867B (Ch. 120349B)



'RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.6Ω	24Ω	12Ω	† 1200Ω	† 1200Ω	2.8Meg
V2	12BA6	13Ω	0Ω	24Ω	36Ω	† 1200Ω	† 1200Ω	120Ω
V3	12AT6	6.8Meg	0Ω	0Ω	12Ω	680K	0Ω	† 470K
V4	50C5	150Ω	470K	36Ω	75Ω	470K	† 1200Ω	† 190Ω
V5	35W4	NC	NC	75Ω	100Ω	120Ω	100Ω	20K (MIN)

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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FIRESTONE
MODEL 4-A-163 (Code 297-6-623)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

FIRESTONE
MODEL 4-A-163 (Code 297-6-623)

FIRESTONE
MODEL 4-A-163 (Code 297-6-623)

TRADE NAME	Firestone Model 4-A-163 (Code 297-6-623)
SUPPLIER	Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, Ohio
TYPE SET	AC-DC Operated AM Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .28 Amp. @ 117 Volts AC (27 Watts)
TUNING RANGE—BROADCAST	540KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to antenna stator lug on tuning gang. Low side to B-.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

FIRESTONE MODEL 4-A-163

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det-AVC-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	FIRESTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	150	R-1781	PRS150V5030	BBRD5315	TCD497	TDLD-8	FMD-301	TVA-2450
B	30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	200	R-1462	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C3	.047	200	R-1462	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C4	10000		N-9062	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C5	10000		N-9062	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C6	.047	200	R-1462	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FIRESTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	R-1780	B-70 ①	A47-1Meg-Z①	Q13-137 ①	U53	Volume, 47K Stop
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

① Use 47K resistor in series with right hand terminal, viewed from shaft end, terminals down.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

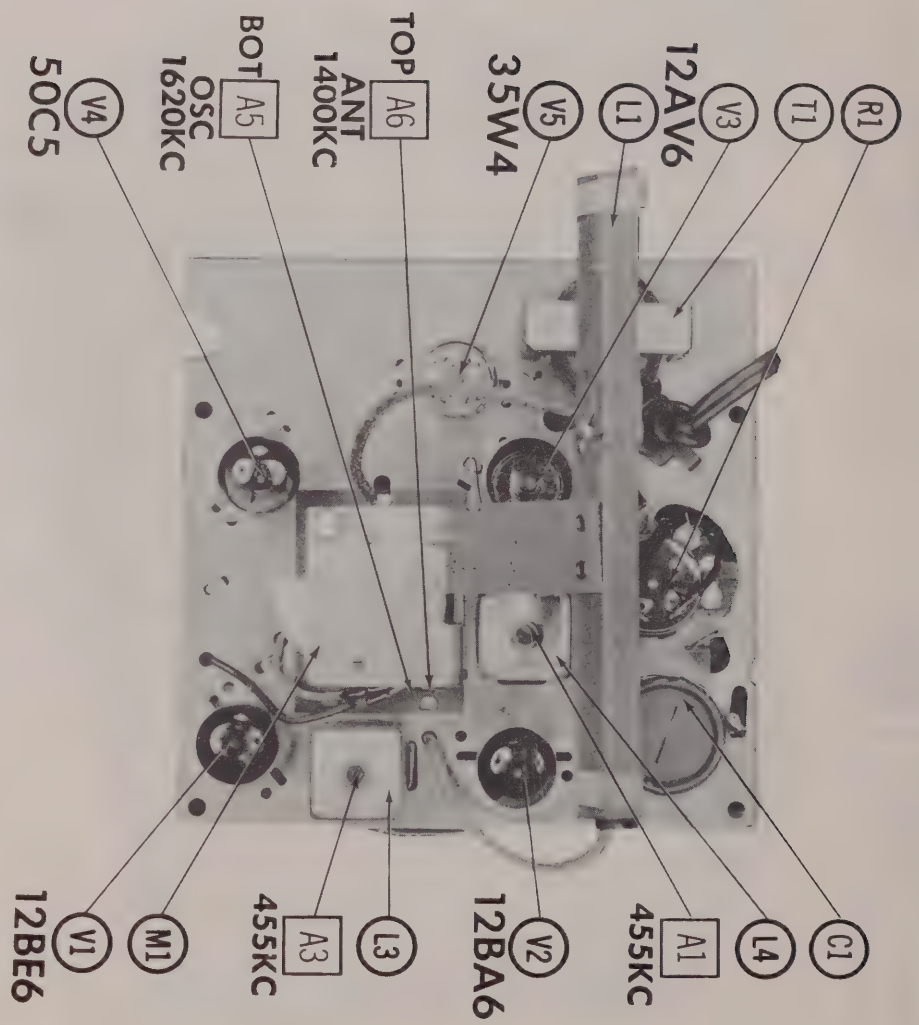
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	FIRESTONE PART No.	IRC PART No.	
R2	22K		N-4025	BTS-22K	
R3	1Meg		N-1262	BTS-1Meg	
R4	180Ω		N-4067	BTS-180	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	FIRESTONE PART No.	IRC PART No.	
R5	180Ω		N-4067	BTS-180	
R6	22Ω		N-4633	BTS-22	
R7	1200Ω	1	N-4900	BTA-1200	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	FIRESTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3400Ω	3-4Ω	R-1480	Z1101 ①	A-3025①	A-3332 ①	26S58②	S-12X ①	① Bend ears down. ② Use original channel mtg. frame.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	FIRESTONE PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	R-1478	4A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		FIRESTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	R-1776				
L2	Osc. Coil	R-1777				
L3	Input IF	R-1237*	16-6758	BC-352	12-C1	
L4	Output IF	R-1237*	16-6758	BC-353	12-C2	

* Alternate part #R-1234.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	FIRESTONE PART No.	REPLACEMENT DATA	
K1	Det. -Audio Net.	2000MMF, 5000MMF, 220MMF, 250MMF, 6. 8Meg, 470K, 470K	R-1487	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA-113-1 PC-150 116TM1 1408-01 DT-5

MISCELLANEOUS

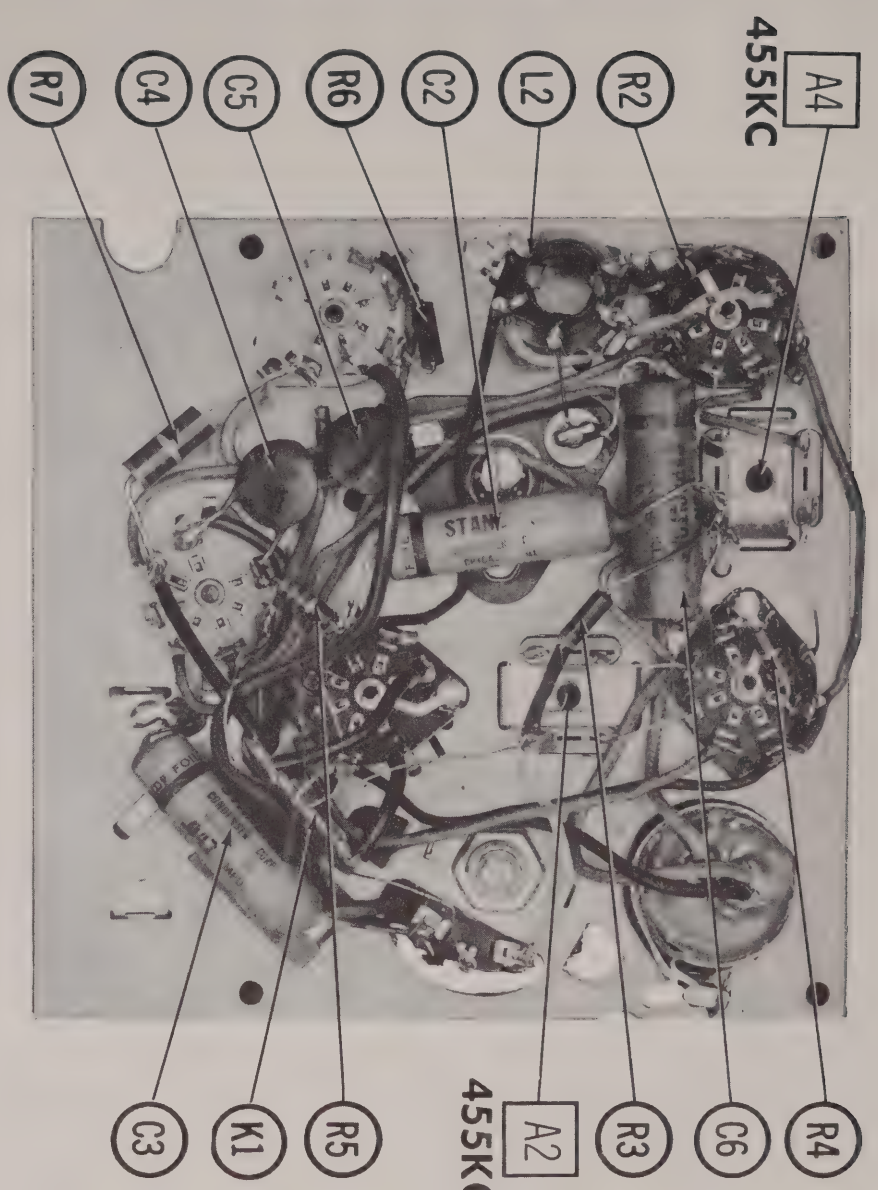
ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M1	Tuning Cap.	R-2556	Two Gang (15-258MMF, 27-125MMF)

CABINETS & CABINET PARTS

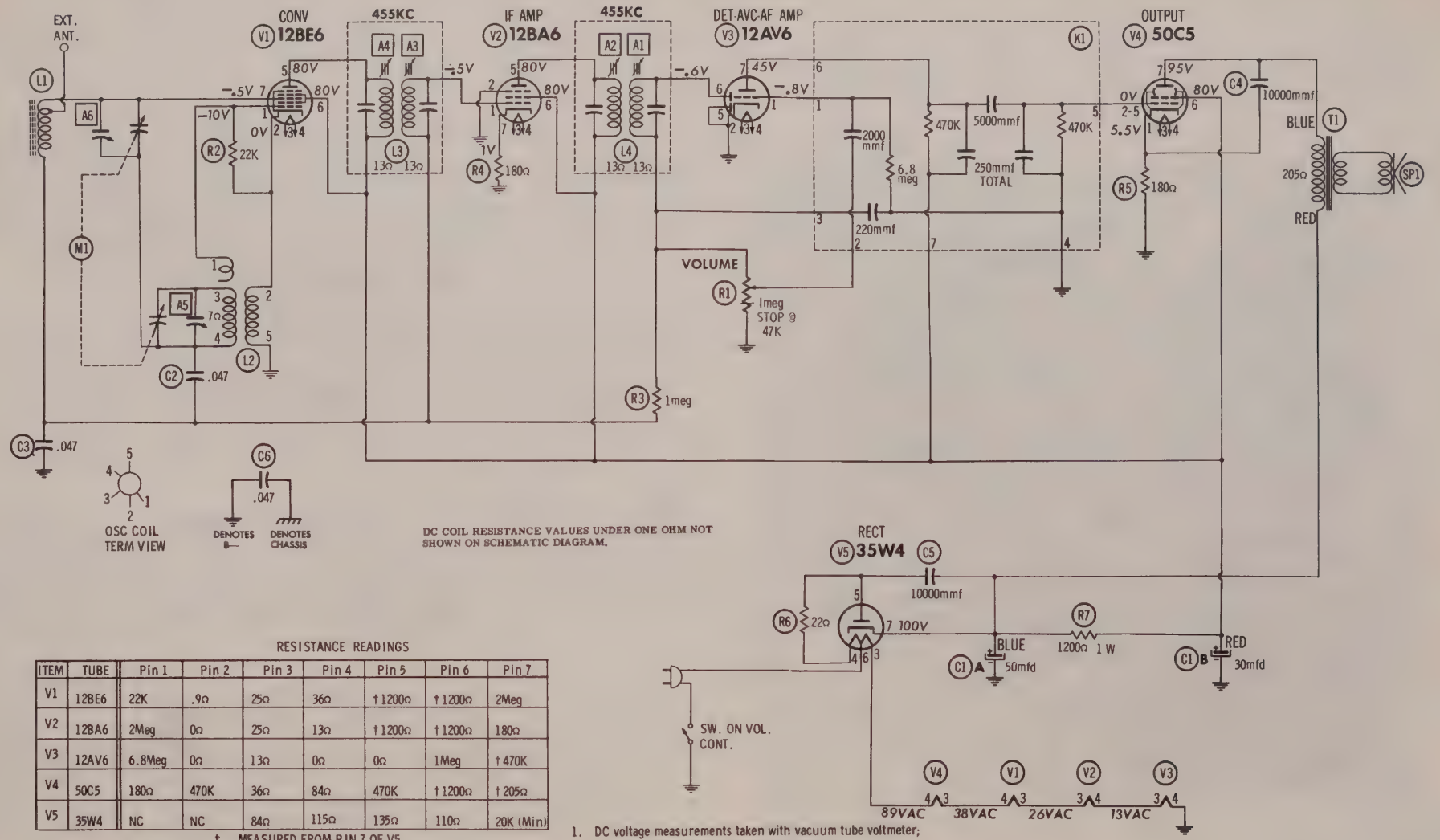
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	R-2554	Tuning
Knob	R-2558	Volume
Cabinet	#623	Coral
Cabinet	#624	Turquoise
Cabinet	#662	Pink

CHASSIS—BOTTOM VIEW



FIRESTONE MODEL 4-A-163



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.9Ω	25Ω	36Ω	†1200Ω	†1200Ω	2Meg
V2	12BA6	2Meg	0Ω	25Ω	13Ω	†1200Ω	†1200Ω	180Ω
V3	12AV6	6.8Meg	0Ω	13Ω	0Ω	0Ω	1Meg	†470K
V4	50C5	180Ω	470K	36Ω	84Ω	470K	†1200Ω	†205Ω
V5	35W4	NC	NC	84Ω	115Ω	135Ω	110Ω	20K (Min)

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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*TRADE MARK

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MODEL P1151U (Ch. 323U)

HOFFMAN MODELS BG1151, U, B1161, U, B3201, U, K1151, U, MG1151, U, M1161, U, M3201, U, P1151, U, SP1161, U, SP3201, U, W1161, U, W3201, U (Ch. 323, U)

TRADE NAME	Hoffman	MODELS	CHASSIS
		B1161, B3201, BG1151, K1151, M1161, M3201, MG1151, P1151, SP1161, SP3201, W1161, W3201	323
		B1161U, B3201U, BG1151U, K1151U, M1161U, M3201U, MG1151U, P1151U, SP1161U, SP3201U, W1161U, W3201U	323U
MANUFACTURER	Hoffman Radio Corp., 6200 S. Avalon Blvd., Los Angeles 3, Calif.		
TYPE SET	Television Receiver		
TUBES	Twenty		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 210 Watts, 1.8 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

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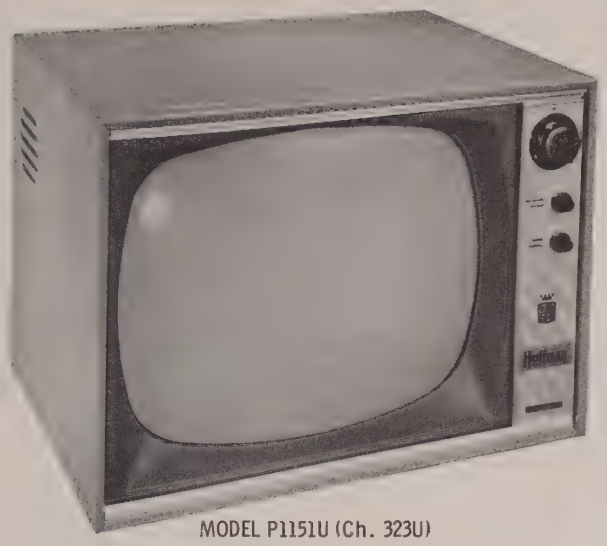

MODEL P1151U (Ch. 323U)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 7 push-on type control knobs from the front.
2. Remove 7 metal screws and the rear cover.
3. Remove the picture tube socket, yoke plug, HV lead and 2 speaker leads.
4. Remove 1 metal screw holding the top chassis brace.
5. Remove 3 chassis bolts from the bottom.
6. Remove the chassis.
7. Remove 2 speaker nuts and the speaker.

MODELS	CHASSIS
B1161, B3201, BG1151, K1151, M1161, M3201, MG1151, P1151, SP1161, SP3201, W1161, W3201	323
B1161U, B3201U, BG1151U, K1151U, M1161U, M3201U, MG1151U, P1151U, SP1161U, SP3201U, W1161U, W3201U	323U

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 5 wood screws holding the metal trim across the top edge of the safety glass. Tilt the glass out at the top and lift up to remove.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 10 or 6 and 2. Readjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The horizontal frequency coil is used as the horizontal hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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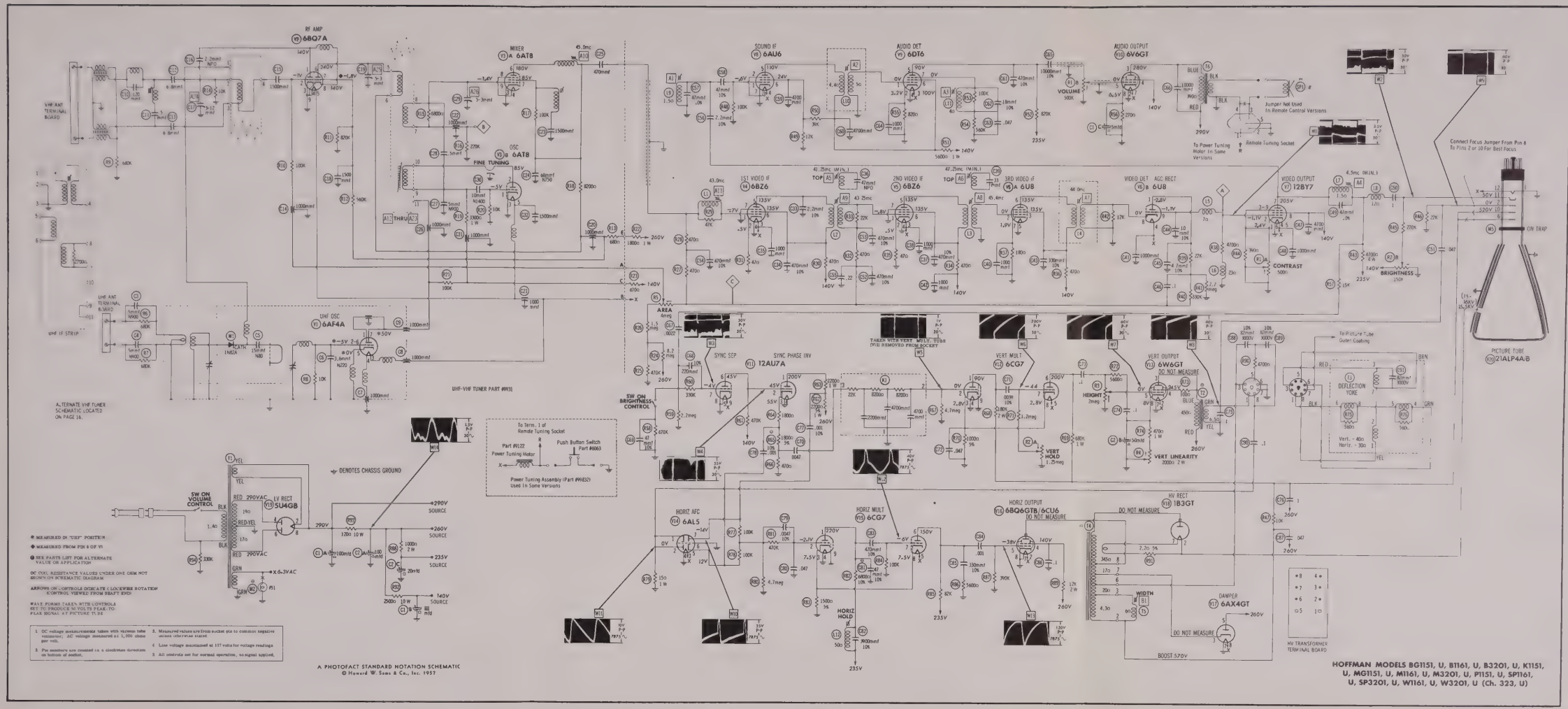
G957

DATE 9 – 57 SET 370 FOLDER 6


RF AMP V2 6BQ7A
MIXER V3A 6AT8
OSC V3B 6AT8
FINE TUNING
SOUND IF V6 6AU6
AUDIO DET V5 6DT6
AUDIO OUTPUT V10 6V6GT
VOLUME
1ST VIDEO IF V4 6BZ6
2ND VIDEO IF V5 6BZ6
3RD VIDEO IF V5A 6U8
VIDEO DET AGC RECT V9B 6U8
VIDEO OUTPUT V7 12BY7
CONTRAST
BRIGHTNESS
VHF ANT TERMINAL BOARD
UHF ANT TERMINAL BOARD
UHF IF STRIP
UHF OSC V1 6AF4A
UHF-VHF TUNER PART #9931
ALTERNATE VHF TUNER SCHEMATIC LOCATED ON PAGE 16.
SYNC SEP V11 12AU7A
SYNC PHASE INV
SW ON BRIGHTNESS CONTROL
TAKEN WITH VERT. MULT. TUBE (V12) REMOVED FROM SOCKET
VERT MULT V12 6CG7
VERT OUTPUT V13 6W6GT DO NOT MEASURE
HEIGHT
VERT HOLD
VERT LINEARITY
DEFLECTION YOKE
PICTURE TUBE V20 21ALP4A/B
ION TRAP
Connect Focus Jumper From Pin 6 To Pins 2 or 10 For Best Focus
To Picture Tube Outer Coating
Vert. - 40∞ Horiz. - 30∞
SW ON VOLUME CONTROL
LV RECT V19 5U4GB
DENOTES CHASSIS GROUND
290V SOURCE
260V SOURCE
235V SOURCE
140V SOURCE
To Term. 1 of Remote Tuning Socket
Part #9122 Power Tuning Motor
Push Button Switch Part #6065
Power Tuning Assembly (Part #9832) Used In Some Versions
HORIZ AFC V14 6AL5
HORIZ MULT V15 6CG7
HORIZ HOLD
HORIZ OUTPUT V16 6BQ6GTB/6CU6 DO NOT MEASURE
HV RECT V18 1B3GT
DAMPER V17 6AX4GT
WIDTH
BOOST 570V
DO NOT MEASURE
HV TRANSFORMER TERMINAL BOARD
Jumper Not Used In Remote Control Versions
To Power Tuning Motor In Some Versions
Remote Tuning Socket
TAKEN WITH VERT. MULT. TUBE (V12) REMOVED FROM SOCKET
* MEASURED IN "HI" POSITION
◆ MEASURED FROM PIN 8 OF V1
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1,000 ohms per volt.
2. Measured values are from socket pin to common negative unless otherwise stated
3. Pin numbers are counted in a clockwise direction on bottom of socket.
4. Line voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation, no signal applied.
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TUBE PLACEMENT CHART

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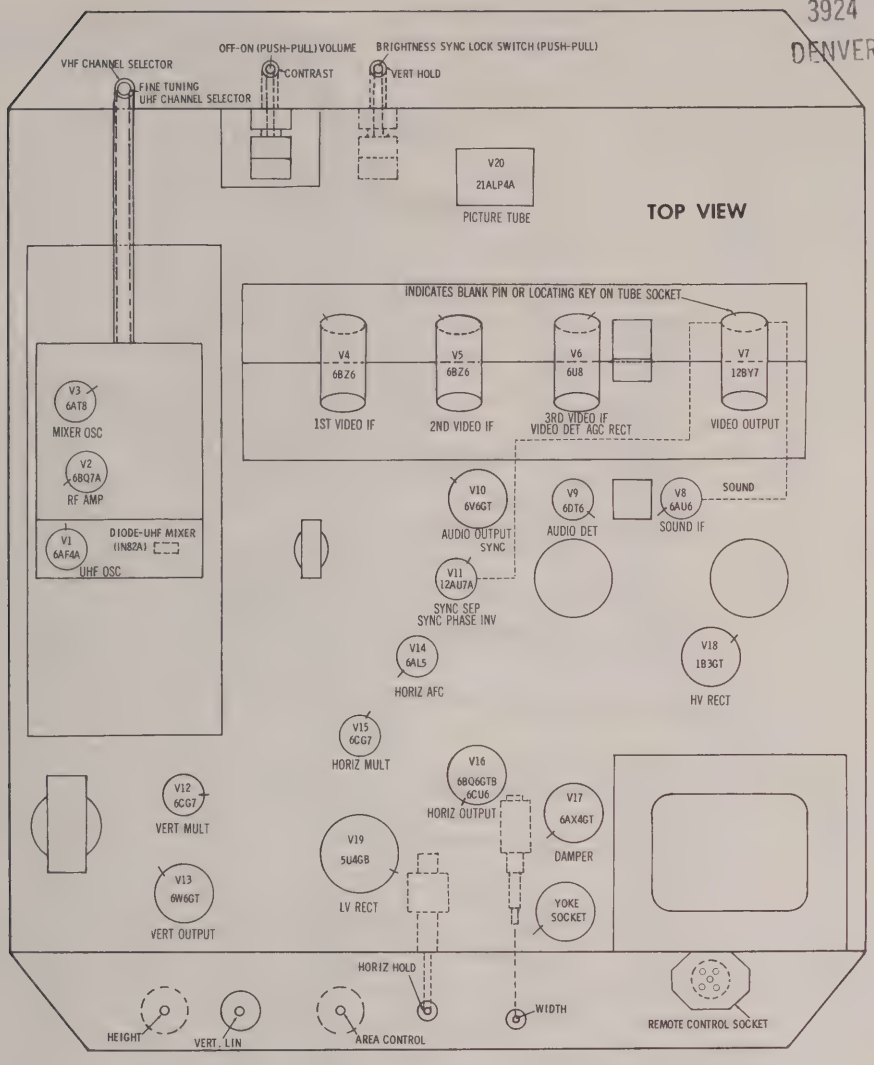

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V19

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V4, V5, V6, V7
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V7, V20
Has pic, no sound - V8, V9, V10

SYNC FAILURE
No vert. sync - V11
No horiz. sync - V11, V14
No vert. or horiz. sync - V11

SWEEP FAILURE
No raster, has sound - V14, V15, V16, V17, V18, V20
No vertical deflection - V12, V13
Poor vert. linearity or foldover - V12, V13
Poor horiz. linearity or foldover - V15, V16, V17
Narrow picture - V15, V16, V17, V19
Vert. off freq. - V12
Horiz. off freq. - V15

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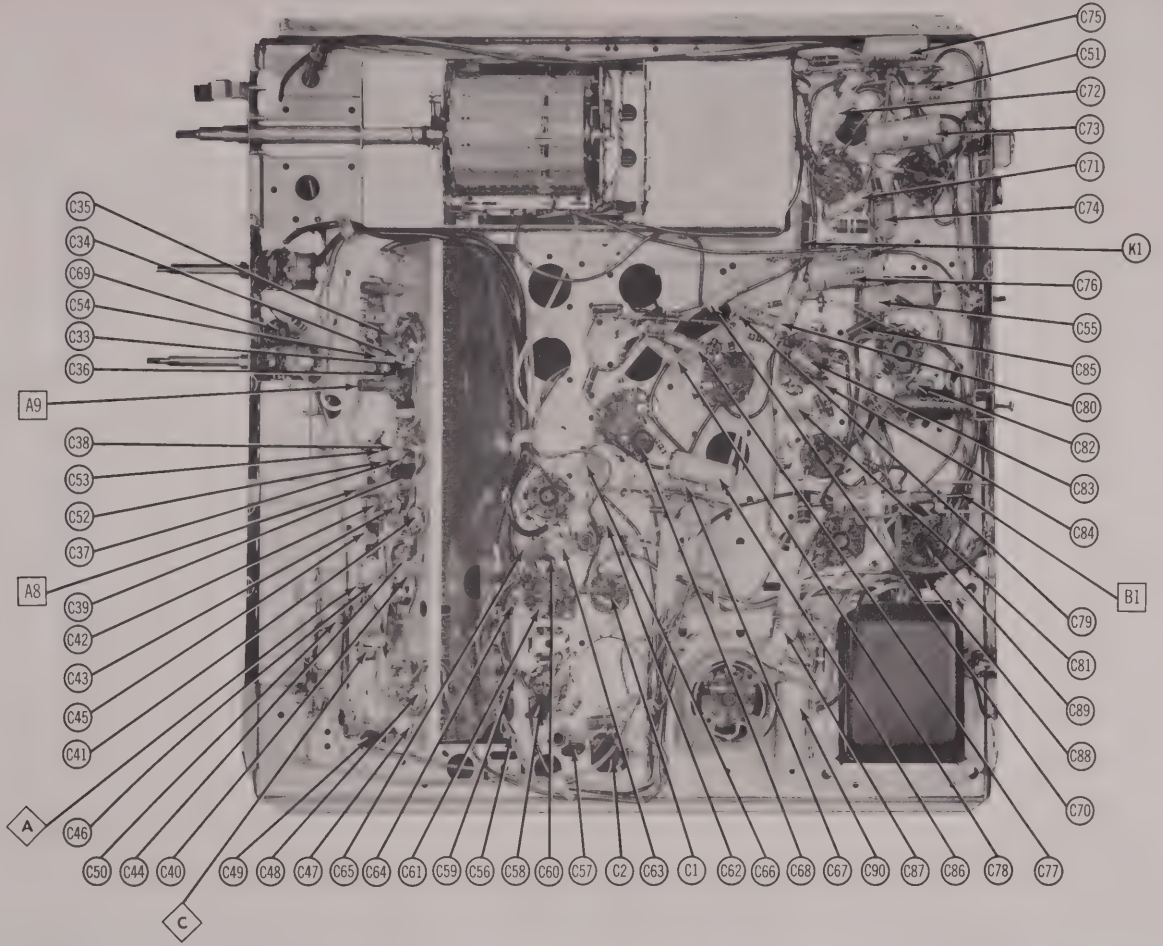
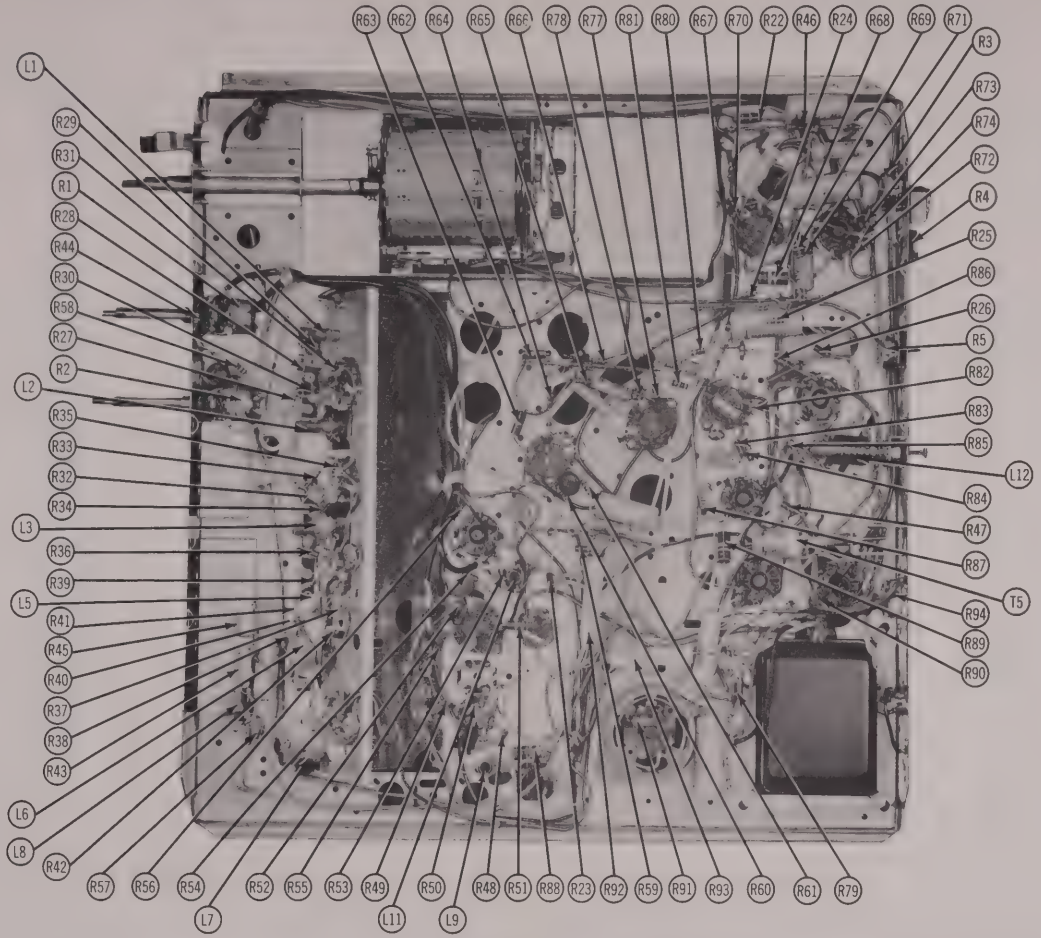


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



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CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Do not remove the horizontal oscillator tube (V15) to disable the high voltage.

SOUND IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.005MFD	High side to point Ⓐ. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to pin 2 (cathode) of 6DT6 (V9). Common to chassis. Use 10 volt scale.	A1, A2	Detune A3 by turning slug fully counter clockwise. Adjust A1 for maximum deflection. Attenuate generator output to maintain meter reading between 2.5 and 3.5 volts during this adjustment. Adjust A2 for maximum deflection. Attenuate generator output to keep reading between 3.5 and 5 volts during this adjustment.
2.	"	"	"	"	DC probe thru 10K to pin 5 (plate) of 6DT6 (V9). Common to chassis. Use 150 volt scale.	A3	Increase generator output to maximum. Adjust A3 clockwise for MINIMUM deflection. Continue turning slug clockwise until a reading of 100 volts (±3 volts) is obtained.
3.	Remove the input signal and retouch A2 for maximum deflection on VTVM.						

4.5MC TRAP ALIGNMENT

Turn contrast control fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.005MFD	High side to point Ⓐ. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to pin 11 (cathode) of picture tube thru detector (Fig. 1). Common to chassis.	A4	Adjust for MINIMUM deflection.

VIDEO IF ALIGNMENT

Throughout alignment, keep the generator output at a level to produce approximately one volt across the VTVM.
Turn contrast control fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	Direct	High side to ungrounded tube shield floating over mixer-oscillator tube (V3). Low side to chassis.	41.25MC (Unmod)	Any non-interfering channel	DC probe to point Ⓐ. Common to chassis.	A5	Adjust for MINIMUM deflection.
6.	"	"	47.25MC	"	"	A6	"
7.	"	"	44.0MC	"	"	A7	Adjust for maximum deflection.
8.	"	"	45.4MC	"	"	A8	"
9.	"	"	43.25MC	"	"	A9	"
10.	"	"	43.0MC	"	"	A10	Adjust for MINIMUM deflection.
11.	"	"	43.0MC	"	"	A11	Adjust for maximum deflection.
12.	"	"	45.0MC	"	"	A10	Adjust for maximum deflection. Repeat steps 5 thru 12 until readings do not change.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Direct	High side to ungrounded tube shield floating over mixer-oscillator tube (V3). Low side to chassis.	43.5MC (10MC Swp)	41.25MC 42.25MC 45.75MC 47.25MC	Any non-interfering channel	Vert. Amp. thru 10K to point Ⓐ. Low side to chassis.		Check for response similar to Fig. 2 with markers as indicated. If necessary, SLIGHTLY retouch A7 thru A11 for desired response.

VHF OSCILLATOR ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point Ⓒ. Positive to chassis.
The channel oscillator adjustment screws are reached thru a hole in the front of the tuner.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point Ⓐ. Low side to chassis.	A12	Adjust to place sound marker in trap notch as in Fig. 3. Video marker should fall at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A13	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A14	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A15	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A16	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A17	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A18	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A19	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A20	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A21	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A22	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A23	

ALIGNMENT INSTRUCTIONS (cont)

VHF RF AND MIXER ALIGNMENT FOR TUNER #9931

Leave bias connected as under "Oscillator Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
15.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis.	A24, A25, A26	Adjust for response curve similar to Fig. 4 with markers above 90%.
16.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 4. If markers fall below 70% on any channel, make compromise adjustments of A24, A25, and A26 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE S.
DENVER, COLORADO

VHF RF AND MIXER ALIGNMENT FOR TUNER #9930

Leave bias connected as under "Oscillator Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis.	A27, A28	Adjust A27 and A28 for response similar to Fig. 4 with markers on shoulders of curve.
18.	"	"	"	"	"	"	A29	Adjust for MINIMUM on scope.
19.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 4. If markers fall below 70% on any channel, make compromise adjustment of A27 and A28 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
			207MC (10MC Swp)	205.25MC 209.75MC	12			
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

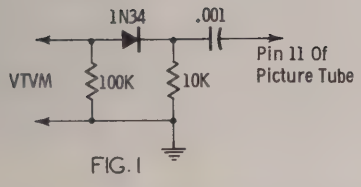


FIG. 1

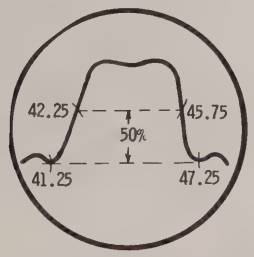


FIG. 2

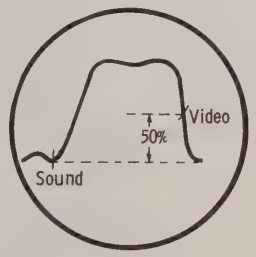


FIG. 3

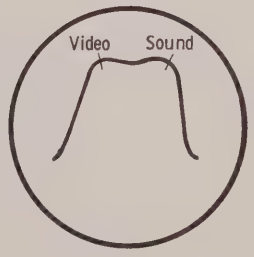
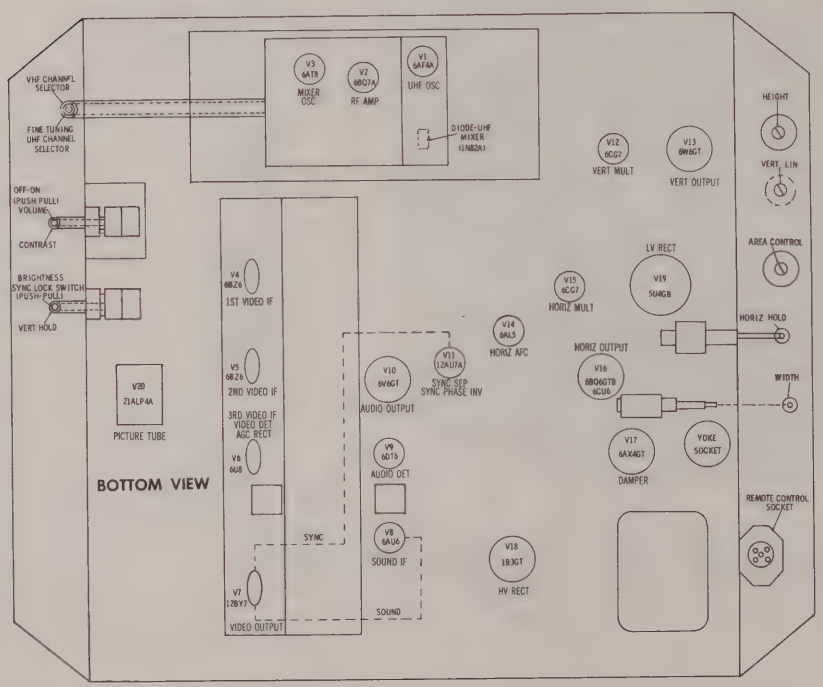


FIG. 4

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AF4A	*† 6400Ω	*10K	.1Ω	0Ω	*.1Ω	*10K	*† 6400Ω		
V2	6BQ7A	INF	• 1.9Meg	0Ω	0Ω	.1Ω	† 2600Ω	† 340K	INF	0Ω
V3	6AT8	10K	† 6500Ω	0Ω	0Ω	.1Ω	† 10K	† 110K	0Ω	220K
V4	6BZ6	1.8Meg	47Ω	.1Ω	0Ω	† 3100Ω	† 3100Ω	0Ω		
V5	6BZ6	1.8Meg	47Ω	.1Ω	0Ω	† 3100Ω	† 3100Ω	0Ω		
V6	6U8	1.6Meg	.1Ω	† 3100Ω	.1Ω	0Ω	† 3100Ω	180Ω	.1Ω	4700Ω
V7	12BY7	• 200Ω	4700Ω	• 200Ω	.1Ω	.1Ω	0Ω	† 5800Ω	† 2600Ω	• 200Ω
V8	6AU6	100K	0Ω	0Ω	.1Ω	† 8000Ω	† 35K	0Ω		
V9	6DT6	5Ω	820Ω	.1Ω	0Ω	† 820K	† 8000Ω	560K		
V10	6V6GT	NC	0Ω	† 390Ω	† 2600Ω	0Ω	NC	.1Ω	270Ω	
V11	12AU7A	† 4500Ω	† 470K	4100Ω	0Ω	0Ω	† 470K	2.6Meg	0Ω	.1Ω
V12	6CG7	‡190K	4.7Meg	1000Ω	0Ω	.1Ω	‡690K	•1.5Meg	1000Ω	0Ω
V13	6W6GT	NC	.1Ω	† 570Ω	† 670Ω	•1.4Meg	TP	0Ω	• 950Ω	
V14	6AL5	15Ω	15Ω	.1Ω	0Ω	4.8Meg	0Ω	4.8Meg		
V15	6CG7	† 7900Ω	5.1Meg	1500Ω	0Ω	.1Ω	† 83K	100K	1500Ω	0Ω
V16	6BQ6GTB / 6CU6	TP	.1Ω	NC	† 12K	390K	TP	0Ω	0Ω	TOP CAP ‡17Ω
V17	6AX4GT	NC	NC	INF	NC	† 120Ω	NC	0Ω	.1Ω	
V18	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡362Ω
V19	5U4GB	NC	¶	NC	19Ω	TP	17Ω	NC	¶	
V20	21ALP4A	0Ω	22K	PIN 6 ‡10K	PIN 10 ‡10K	PIN 11 • 280K	PIN 12 .1Ω			

* MEASURED IN "UHF" POSITION.
† MEASURED FROM PIN 8 OF V19.
‡ MEASURED FROM PIN 3 OF V17.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
TP TIE POINT
NC NO CONNECTION



TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CHASSIS TOP VIEW

HOFFMAN MODELS BG1151, U, B1161, U, B3201, U, K1151, U, MG1151, U, M1161, U, M3201, U, P1151, U, SP1161, U, SP3201, U, W1161, U, W3201, U (Ch. 323, U)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	UHF Oscillator	6AF4A	
V2	RF Amplifier	6BQ7A	
V3	Mixer-Osc	6AT6	
V4	1st Video IF Amp	6BZ6	
V5	2nd Video IF Amp	6BZ6	
V6	3rd Video IF Amp	6U8	
V7	Video Det - AGC Rect	6U8	
V8	Video Output	12BY7	
V9	Sound IF Amp	6AU6	
V10	Audio Det	6U8	
V11	Sync Sep - Sync Phase Inv	12AU7A	
V12	Vert Multi	6CQ7	
V13	Vert Output	6V6GT	
V14	Horiz AFC	6AL5	
V15	Horiz Multi	6CQ7	
V16	Horiz Output	6BQ6GTB/ 6CN7B	
V17	Damper	6AX4GT	
V18	RF Rectifier	1B3GT	
V19	CR Rectifier	1N462B	

ITEM No.	USE	TYPE	NOTES
V20	Audio Output	6V6GT	
V21	Sync Sep - Sync Phase Inv	12AU7A	
V22	Vert Multi	6CQ7	
V23	Vert Output	6V6GT	
V24	Horiz AFC	6AL5	
V25	Horiz Multi	6CQ7	
V26	Horiz Output	6BQ6GTB/ 6CN7B	
V27	Damper	6AX4GT	
V28	RF Rectifier	1B3GT	
V29	CR Rectifier	1N462B	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA			NOTES
	HOFFMAN PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V30	21ALP4A ①	21ALP4B 21ALP4A ② 21ALP4	21ALP4A/ 21ALP4B ②	① Aluminized ② Silver Screen "88"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP	VOLT	HOFFMAN PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C3A	40	150	4258A	AFH4-05-50	CO232 5HH50-50	FP247 TC30		T-180 MMT-0505	R2402 *
B	40	250							
C	5	50							
C3A	40	350	4255A	AFH4-56-63	CU230 5HH50	FP256 TC29	TMD-102 TYD-30-350	T-510 MMT-0550	R2403 *
B	30	50							
C	20	250							

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA								NOTES
	CAP	VOLT	HOFFMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.		
C3	5										N900
C4	8										H900
C5	18										N90
C6	3 ±										N220
C7	1000			EF-001	MFT-1000					503C-DI	
C8	1000			EF-001	MFT-1000					503C-DI	
C9	1000			EF-001	MFT-1000					503C-DI	
C10	120			BPD-00012	DD-12	LU0T12	ED-120	UC-5512		5GA-T12	
C11	5			NPO-S1 5	TCZ-4R7	C107SC	TCO-5	ET-555		ST-CCD-V47	
C12	8.1			NPO-S1 8.1	TCZ-5R8	C107S8C	TCO-8.1	ET-5588		ST-CCD-V58	
C13	8.1			NPO-S1 8.1	TCZ-5R8	C107S8C	TCO-8.1	ET-5588		ST-CCD-V58	
C14	.1000			EF-001	MFT-1000					503C-DI	
C15	.0015			BPD-0015	DD-152	BYA10Z15	ED-0015	DC5215		5HK-DI5	
C16	2.2			NPO-S1 2.2	TCZ-2R2	C107Z2C	TCO-2.2			ST-CCD-V22	NPO
C17	3-12										
C18	.500			BPD-0018	DD-152	BYA10Z15	ED-0015	DC5215		5HK-DI5	
C19	5.3				528-3		511B-D	CT565A			
C20	.000			EF-001	MFT-1000					503C-DI	
C21	.1000			EF-001	MFT-1000					503C-DI	
C22	.1000			EF-001	MFT-1000					503C-DI	
C23	.500			BPD-0015	DD-152	BYA10Z15	ED-0015	DC5215		5HK-DI5	
C24	68			NT50-S2 68	TCM-68	C10Q68U	TCT-68			5TCU-Q68	NT50
C25	470			BPD-0047	DA-T47	BYA10T47	ED-470	UC-5547		5GA-T47	
C26	.1000			EF-001	MFT-1000					503C-DI	
C27	5				TCZ-5R						N900
C28	5				528-3		511B-D	CT565A			N1400
C29	5-3										
C30	10										
C31	.1000			EF-001	MFT-1000					503C-DI	
C32	.1500			BPD-0015	DD-152	BYA10Z15	ED-0015	DC5215		5HK-DI5	
C33	2.2		4088	NPO-S1 2.2	TCZ-2R2	C107Z2C	TCO-2.2			5TCCD-V22	10%
C34	470		14008		DD-471	LU0T47	ED-470				10%
C35	.1000		14046	BPD-001	DD-102	BYA8Z1	ED-1000	DC521		5HK-DI	
C36	47			NPO-S1 47	TCZ-47	C10Q47C	TCO-47	ET-5447		5TCC-Q47	NPO
C37	470		14009		DD-471	LU0T47	ED-470				10%
C38	.1000		14045	BPD-001	DD-102	BYA8Z1	ED-1000	DC521		5HK-DI	
C39	33			BPD-00033	DD-330	LU0J33	ED-330	UC-5433		5GA-Q33	
C40	.1000		14045	BPD-001	DD-102	BYA8Z1	ED-1000	DC521		5HK-DI	
C41	.1000		14045	BPD-001	DD-102	BYA8Z1	ED-1000	DC521		5HK-DI	
C42	.1000		14045	BPD-001	DD-102	BYA8Z1	ED-1000	DC521		5HK-DI	
C43	4000		4089		DD-332	LU0T32	ED-332				10%
C44	10		14058		DE-100	LT0J0	ED-100				10%
C45	4.7		4085	NPO-S1 4.7	TCZ-4R7	C107V7C	TCO-4.7	ET-5547		5TCCD-V47	10%
C46	1	200	4141	P388N-1		DF-104		CU388F1		GEM-3041	5TM-P1
C47	4700		4035	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5347		5HK-DI47	
C48	.1000		14045	BPD-001	DD-102	BYA8Z1	ED-1000	DC521		5HK-DI	
C49	47		4007	NPO-S1 47	TCZ-47	C10Q47C	TCO-47	ET-5447		5GA-Q47	10%
C50	1	400	4100	P488N-1		DF-104		CU348F1		GEM-4041	5TM-P1
C51	.047	200	4147	BPD-05		DF-503	CU38547			GEM-5147	5TM-S47
C52	470		14008			D5-471	LU0T47	ED-470			10%
C53	470		14009			D5-471	LU0T47	ED-470			10%
C54	470		14009			D5-471	LU0T47	ED-470			10%
C55	3	200	4131	P388N-22		CU382Z3			GEM-3032	2TM-P32	
C56	2.2		4089	NPO-S1 2.2	TCZ-2R2	C107Z2C	TCO-2.2			5TCCD-V22	10%
C57	47		4007	NPO-S1 47	TCZ-47	C10Q47C	TCO-47			5GA-Q47	10%
C58	47		4007	NPO-S1 47	TCZ-47	C10Q47C	TCO-47	ET-5447		5GA-Q47	10%
C59	4700		4035	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5347		5HK-DI47	
C60	4700		4035	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5347		5HK-DI47	
C61	470		4147		DE-471	LU0T47	ED-470				10%
C62	18		14059		DC-180	C30J8C	TCO-18				10%
C63	.047	200	4147	BPD-05		DF-503	CU38547		GEM-3147	2TM-S47	
C64	1000		14048	BPD-001		DD-102	BYA8Z1	ED-1000	DC521	5HK-DI	
C65	10000		4088								10%
C66	10000		4087	BPD-01		DD-103	BYA8S1	ED-01	DC531	5HK-SI	
C67	.0022	400	4160	BPD-0022		DE-222	CUH2Q3	GP-2200	GEM-6222	6TM-D22	
C68	220		4084			D5-221	LU0T22	ED-220			10%
C69	47		4007			D5-470	LU0J47	ED-47			10%
C70	.0047	200	4137	BPD-0047		DD-472	CUH6D47	GP-4700	GEM-6347	6TM-D47	
C71	.0039	400	4162								10%
C72	.047	200	4147	BPD-05		DF-503	CU38547		GEM-5147	5TM-S47	
C73	1	600	4139	P588N-1		DF-104		CU38F1	GEM-601	6TM-P1	
C74	1	600	4140	P588N-1		DF-104		CU38F1	GEM-601	6TM-P1	
C75	1	400	4150	P488N-1		DF-104		CU348F1	GEM-401	4TM-P1	

PARTS LIST AND DESCRIPTIONS

CAPACITORS (cont)

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP	VOLT	HOFFMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C76	1	600	4126	P588N-1		DF-104	CU38F1		GEM-601	6TM-P1	
C77	001	200	4175					ED-1000			10%
C78	001	200	4175					ED-1000			10%
C79	.0047	200	4185					ED-1000			10%
C80	.047	200	4147	BPD-05	DF-503	CU38547			GEM-5147	5TM-S47	
C81	47				D5-470	L30J47		ED-47			10% ①
C82	.1000		4037	1484-0039		1S3D39	CY15C393J	MS-259			10%
C83	470		14009	1484-00047		D5 471	3RS747	CY15C471K	MS-347		10%
C84	001	600	4174	BPD-001		DD-102	CUH1Q	GP-1000	GEM-421	4TM-D1	
C85	330		4010	1489-00033		D5-331	3RS733	CY15C331J	MS-333		10%
C86	1	400	4150	P488N-1		DF-104	CU348F1		GEM-401	4TM-P1	
C87	.047	600	4223	BPD-05		DF-503	CU38547		GEM-5147	6TM-S47	
C88	83	3000	14408			DG30-820					10%
C89	82	3000	14409			DG30-820					10%
C90	1	600	4126	P588N-1		DF-104	CU38F1		GEM-601	6TM-P1	
C91	82	3000				DG30-820					

① Some versions may use a 33MMF, 500V 10% in this application (Part #14008).

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	HOFFMAN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500Ω	1	4215A	F1-1			U5823	Contrast
B	500K			R2-40			Not Req.	Volume
C	Switch			KS-1			Not Req.	
R3A	1.25Meg	1	4247A				U5705B	Vert Hold
B	150K						Not Req.	Brightness
C	Switch						Not Req.	Sync Lock
R3A	2Meg	1	4965	BX-75	A47-2Meg-S	QU-139	TA38L	Height
B	Shaft			Not Req.	FXQ-1/4	Not Req.	Not Req.	
R4	2000Ω	2	4924A		39-2000		FL-2.5K	Vert. Lin. - Wire wound
R5A	4Meg	1	4970	B-48	A47-4Meg-S	QU-142	TA38L	Area
B	Shaft			Not Req.	FXQ-1/4	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	HOFFMAN PART No.	IRC PART No.	
R6	680K			BTS-680K	
R7	680K			BTS-680K	
R8	10K		4597	BTS-10K	
R9	680K			BTS-680K	
R10	100K		4571	BTS-100K	
R11	820K		4576	BTS-820K	
R12	560K		4590	BTS-560K	
R13	680Ω			BTS-680	
R14	10K		4597	BTS-10K	
R15	6800Ω			BTS-6800	
R16	220K			BTS-220K	
R17	100K		4571	BTS-100K	
R18	5200Ω			BTS-5200	
R19	3300Ω	1		BTA-3300	
R20	10K		4597	BTS-10K	
R21	100K		4571	BTS-100K	
R22	1800Ω	1	24818	BTA-1800	
R23	470Ω		4864	BTS-470	
R24	8.2Meg		34889		
R25	470K		4622		
R26	1.5Meg		4803		
R27	470Ω		4864	BTS-470	
R28	470Ω		4864	BTS-470	
R29	47K		4599		
R30	470Ω		4864	BTS-470	
R31	47Ω		4828	BTS-47	
R32	470Ω		4864		
R33	33K		4680	5HK-DI5	
R34	470Ω		4864	BTS-470	
R35	47Ω		4689	BTS-47	
R36	470Ω		4864	BTS-470	
R37	180Ω		24818	BTS-180	
R38	4700Ω		4970	BTS-4700	
R39	33K		4680	BTS-33K	
R40	330K		34531	BTS-330K	
R41	2.2Meg		4806	BTS-2.2Meg	
R42	15K		4684	BTS-15K	
R43	4700Ω	4	44813		
R44	390Ω		4948	BTS-390	
R45	270K		4802	BTS-270K	
R46	33K		4680	BTS-33K	
R47	10K		4597	BTS-10K	
R48	100K		4571	BTS-100K	
R49	15K		4684	BTS-15K	
R50	39K		24838	BTS-39K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	HOFFMAN PART No.	IRC PART No.	
R51	5800Ω	1	24843	BTA-5800	
R52	680K		4776	BTS-680K	
R53	100K		4571	BTS-100K	
R54	560K		4590	BTS-560K	
R55	330Ω		4683	BTS-330	
R56	270Ω		4682	BTS-270	
R57	15K		4684	BTS-15K	
R58	470K		4823	BTS-470K	
R59	2.2Meg		4806	BTS-2.2Meg	
R60	330K		34531	BTS-330K	
R61	470K		4823	BTS-470K	
R62	23000Ω 5%	1	34538	BTA-2300 5%	
R63	2300Ω	1	4826	BTA-2300	
R64	1000Ω			BTA-1000	
R65	18000Ω 5%		24817	BTS-1800 5%	Note 1
R66	470Ω		4864	BTS-470	
R67	4.7Meg		4844	BTS-4.7Meg	
R68	180K	2	34509	BTS-180K	
R69	680K	1	34671	BTA-680K	
R70	1000Ω 5%		16895	BTS-1000 5%	
R71	1.5Meg		34503	BTS-1.5Meg	
R72	5600Ω		4839	BTS-5600	
R73	100Ω		4566	BTS-100	
R74	470Ω	1	4818	BTA-470	
R75	560Ω				
R76	560Ω				
R77	100K		4571		
R78	100K		4571		
R79	15Ω	1	14508		
R80	4.7Meg		4844		
R81	470K		4823		
R82	6800Ω		4557		
R83	1000Ω 5%		4565		
R84	100K		4571	BTS-100K	
R85	82K		24870		
R86	5600Ω		4839		
R87	390K		4823	BTS-390K	
R88	1000Ω	2	14898	BTS-1000	
R89	15K	2	34503	BTS-15K	
R90	4700Ω		4976A		
R91	2.2Ω 5%		4725	BW-2.2 5%	
R92	33000Ω	10	4761A	PW10-33K	
R93	1300Ω	10	4701A		
R94	330K		4977	BTS-330K	

Note 1. Some versions may use a 23000Ω, 5% 1W in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	HOFFMAN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117VAC ±0.1 Ra.	680 VCT 2 .225A	5V 3A	6.3V 2.9.6A	H50H		P-3050 ①	P-8338 ②	26H20 ③	H-66BC	

① Tape 6.3V Ⓖ 4.5A winding.
② Tape 6.4V Ⓖ 1.6A winding.
③ Tape 6.3V Ⓖ 4.5A winding and 6.9V Ⓖ 1.2A windings

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA									
		HOFFMAN PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert Output	5155A-2	21900 ①	A-2823 ①		V307 ①	A-8142 ①	25S77	A-102X ①	
	Alt Vert Output	5155A	21900 ②	A-2823 ②		V307 ②	A-8142 ②	25S77	A-102X ②	
T3A	Yoke-Horiz (20MH)	9940A ③	DF507 ③	M0F-93 ③	225H ③	Y09719/43 ③	DY-16A ③	Y-16 ③	Y-4L ③	
B	(60°) Vert (30-5MH)		④ ⑤		④ ⑤		④ ⑤	④ ⑤	NW4 ④	
M4	Rear Cover and Centering Device	10028								
T4	Horiz. Output	5158A-2	FB419 *	HVO-36 *	235T1 *	X094 *	HO-256 *	FLY-16 *	D-50 *	
	Alt. Horiz. Output	5158A	FB419 *	HVO-36 *	235T1 *	X094 *	HO-256 *	FLY-16 *	D-50 *	
T5	Width Coil (2.7-17MH)	5464	RF500 ⑥ ⑦	MWC-11	212CU	20UC16	WC-15 ⑥	WC-18 ⑥	WLC-6	

① Drill new mounting hole(s).
② Use 8 to 1 turns ratio.
③ Includes resistors R75, R78, capacitor C91, rear cover and centering device and yoke plug.
Connect horizontal network across yoke terminals #3 and #7. Use original rear cover and centering device.
Use original horizontal network, if necessary.
④ Enlarge mounting hole.
Use terminals #1 and #2.
⑤ Use red and blue terminals.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	8	9	9	9	9	9	9	9
	7	7	7	7	7	7	7	7
	6	5	5	5	5	5	5	5
	5	3	3	3	3	3	3	3
	4	2	1	1	1	1	1	1
Lowest Width Coil Across		2 & 3	1 & 3	1 & 3	1 & 3	1 & 3	1 & 3	1 & 3

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	HOFFMAN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T6	7500Ω	3-4Ω	5150A	21115	A-3881	A-3878	24S52	S-7X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	HOFFMAN PART No.	QUAM PART No.	
SP1	4" 8"	PM	3-4Ω	5811T ① 5133 ②	4A07	① Used in Models BG11S1, U, K11S1, U, M11S1, U, SP11S, U, W11S1, U ② Used in Models B13S1, U, M13S1, U, SP13S1, U, W13S1, U

COILS (RF-IF)

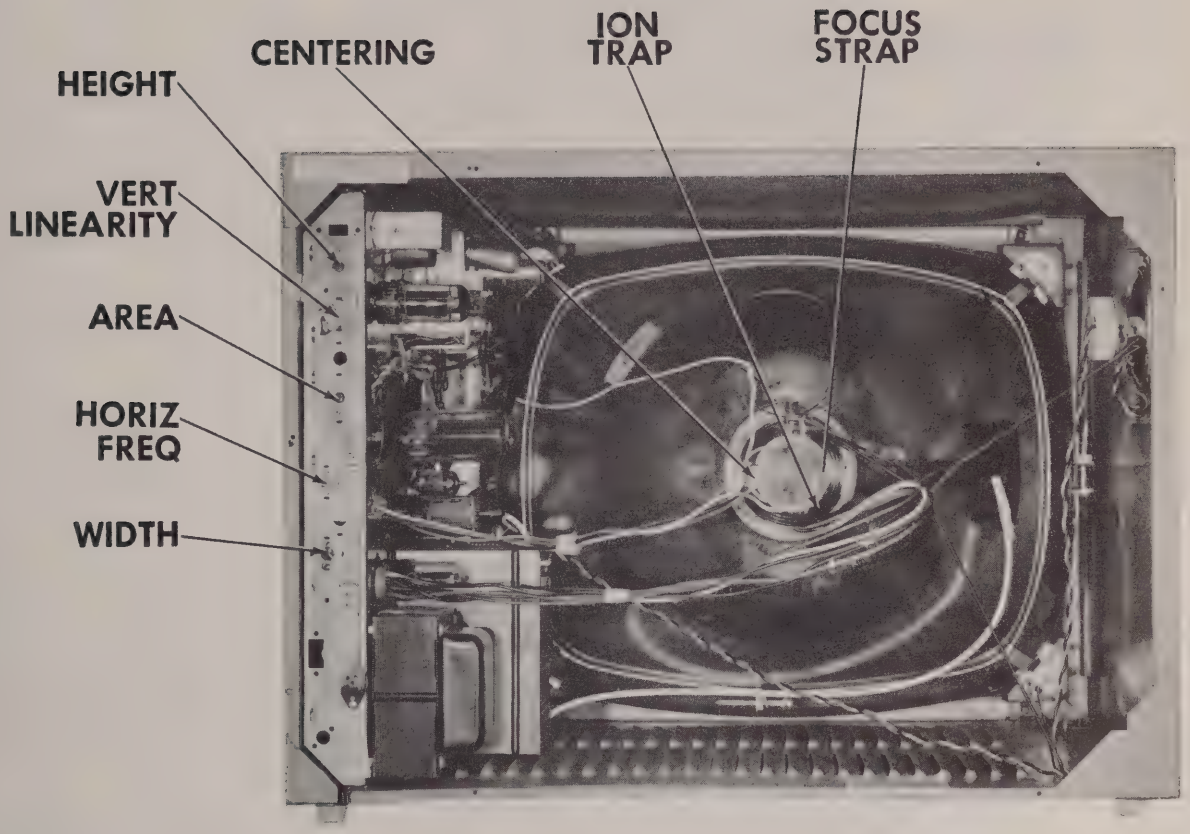
ITEM No.	USE	REPLACEMENT DATA				NOTES
		HOFFMAN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	1st. Video IF	5210A	17-4534	TV-131	8236	
L2	2nd. Video IF	5334A	17-4535		8231	Includes 41.25MC Trap
L3	3rd. Video IF	5137A	17-4538		8232	Includes 47.25MC Trap
L4	4th. Video IF	5264A	17-5004	TV-133	8234	
L5	Series Peaking Coil	5263A	19-5100	TV-161	8177	100 Microhenries
L6	Shunt Peaking Coil	5207A			8166	330 Microhenries
L7	4.5MC Trap	5321A	30-1004	TV-181	1402	
L8	Series Peaking Coil	5350A	19-5300		8133	320 Microhenries
L9	1st. Sound IF	5321A	20-1004	TV-151	1401	
L10	2nd. Sound IF	5370A	17-5498	TV-113	8203	
L11	Quadrature Coil	5269A	20-1007	TV-13	1400	

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA							NOTES
	PRI.	SEC.	HOFFMAN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	
L12	50Ω		5447	19-1576	TV-163	6310			21S-5	30.5-45 Millihenries

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	HOFFMAN PART No.	REPLACEMENT DATA	
R1	Vert. Integrator	2200MMF, 4700MMF, 4700MMF, 22K, 82000, 82000	9696	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA-110 PC-100 1S7M1 1405-01 V-1



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.

2. Set the brightness and contrast controls for a normal picture.

3. Turn the horizontal hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

4. Turn the horizontal hold slowly counter clockwise until the picture just falls into sync.

5. Adjust width slug (B1) for picture slightly wider than necessary to fill picture mask horizontally.

PARTS LIST AND DESCRIPTIONS (Continued)

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		HOFFMAN PART No.	CBS PART No.	SYLVANIA PART No.	
M1	1N82A		1N82A	1N82A	UHF Mixer (Clip-in)

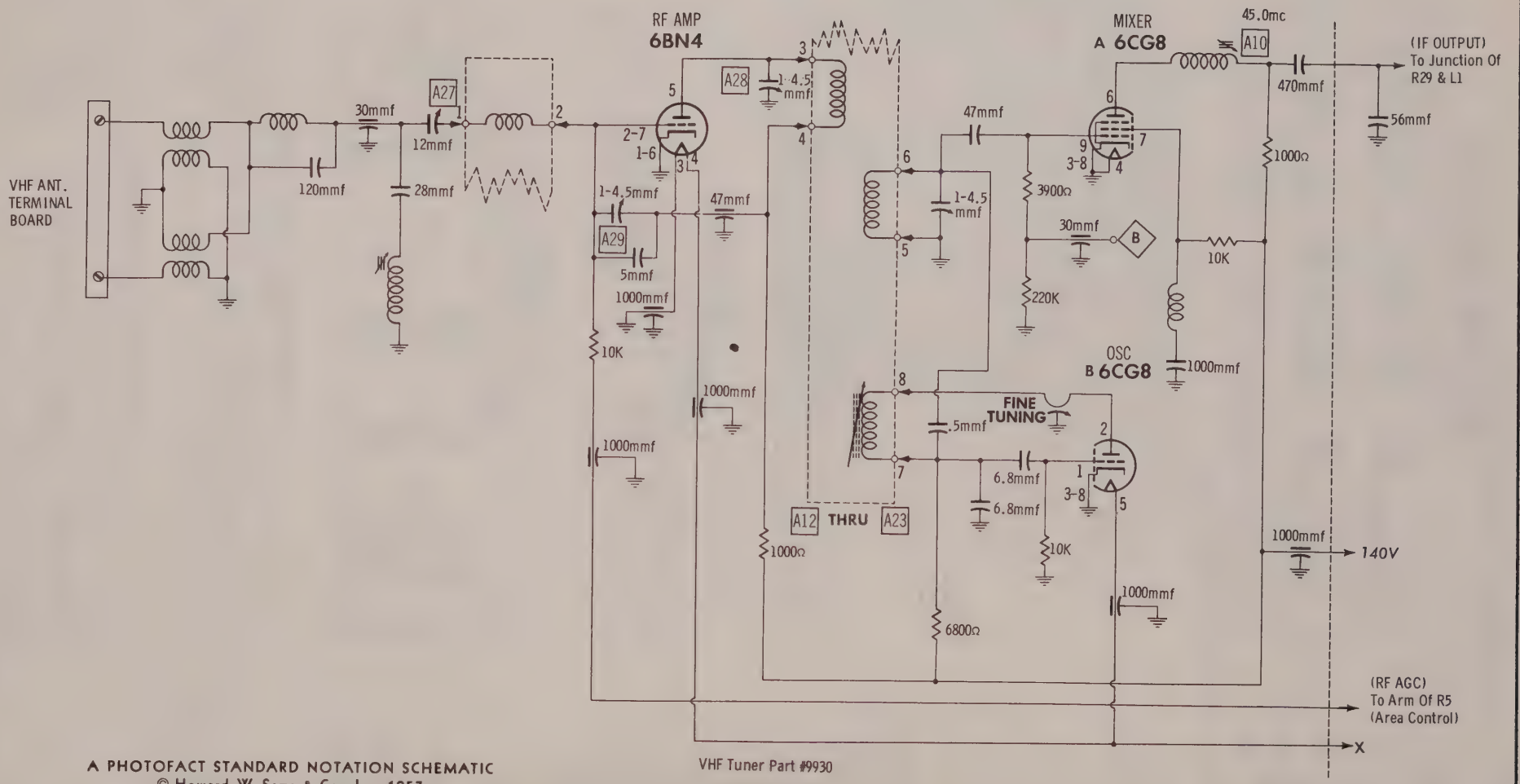
MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
M2	Pilot Light	9503	Type #51 - UHF versions only
M3	Tuner	9931	UHF-VHF
	Tuner	9930	VHF
M4	Centering Device	10028	Includes yoke rear cover
M5	Ion Trap	9713	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	831	
Mask	22078	
Knob	K33765	UHF Channel Selector
Knob	K33766	VHF Channel Selector - UHF-VHF Models
Knob	K33855	Fine Tuning - UHF-VHF Models
Knob	K33836	VHF Channel Selector - VHF Models
Knob	K33035	Fine Tuning - VHF Models
Knob	K33837	On-off-volume, brightness
Knob	K33056	Contrast, vert. hold
Cabinet	K7796	Black , Models K1151, U
Cabinet	MG7796	Mahogany - Models MG1151, U
Cabinet	P7796	Maple - Models P1151, U
Cabinet	BG7796	Oak - Models BG1151, U
Cabinet	77537	Mahogany - Model M1161
Cabinet	77561	Maple - Model SP1161
Cabinet	77539	Oak - Model B1161
Cabinet	77542	Walnut - Models W1161, U
Cabinet	77538	Mahogany - Model M1161U
Cabinet	77562	Maple - Model SP1161U
Cabinet	77540	Oak - Model B1161U
Cabinet	77534	Mahogany - Models M3201, U
Cabinet	77563	Maple - Models SP3201, U
Cabinet	77535	Oak - Model B3201, U
Cabinet	77536	Walnut - Models W3201, U



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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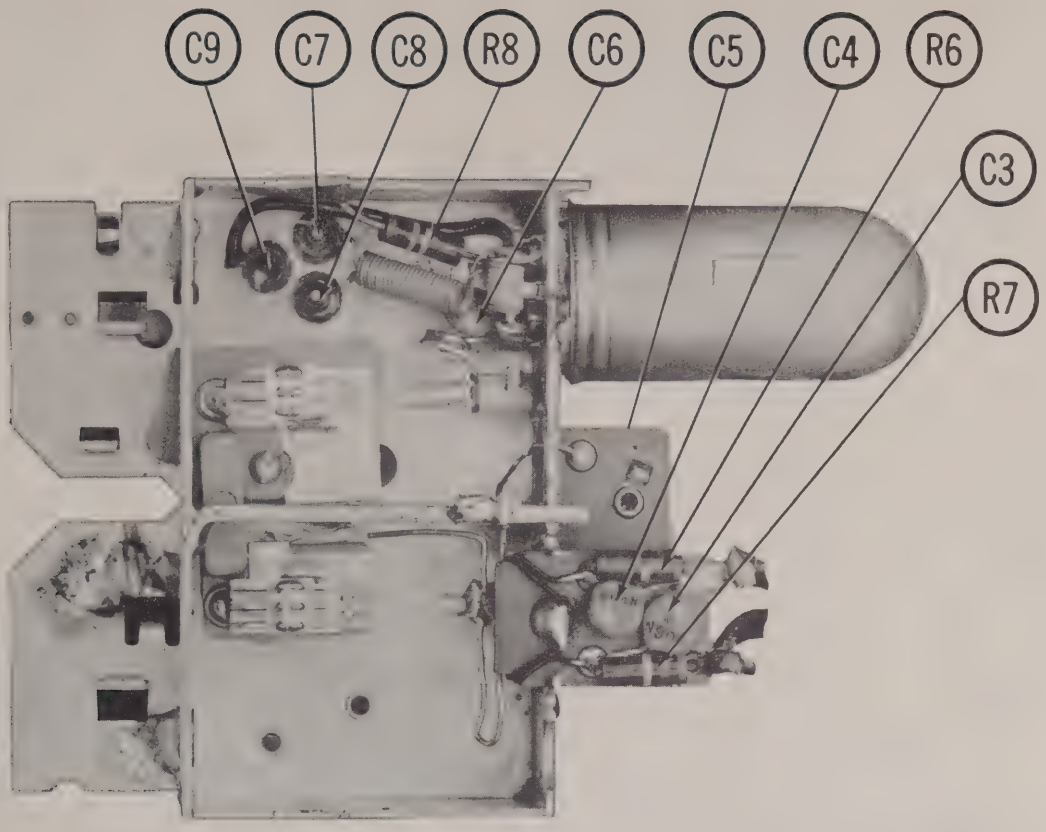
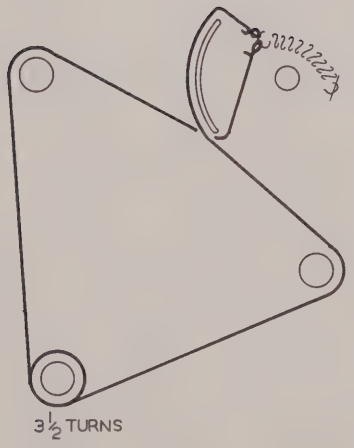
VHF Tuner Part #9930

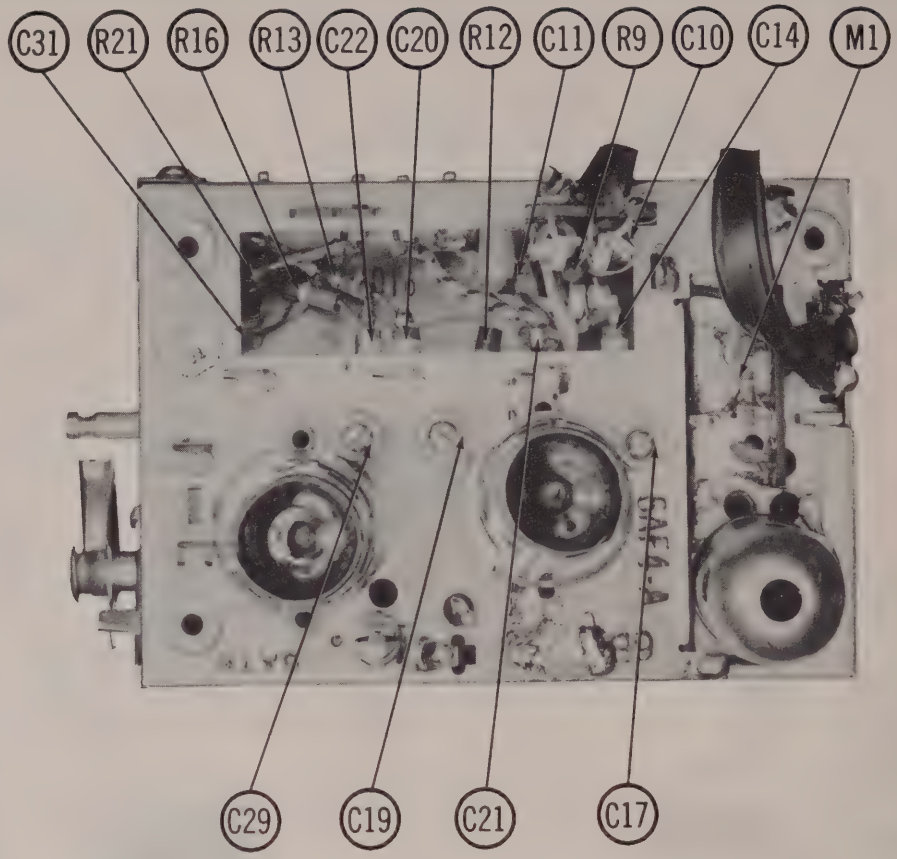
ALTERNATE TUNER SCHEMATIC



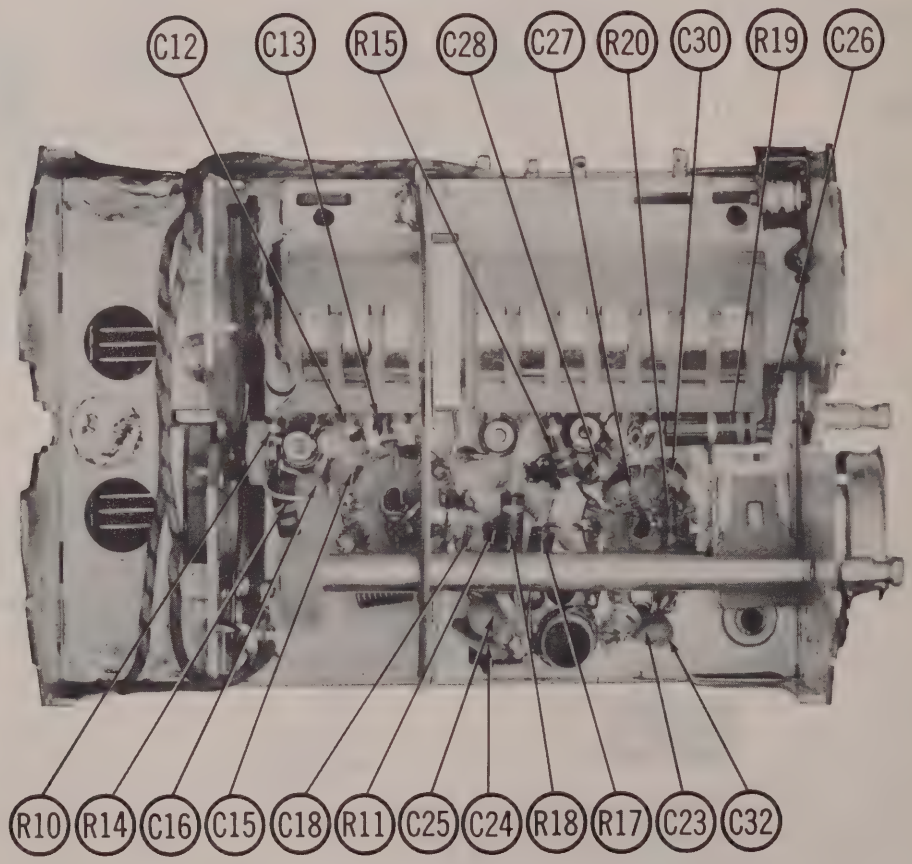
UHF TUNER SIDE VIEW



UHF DRIVE CORD

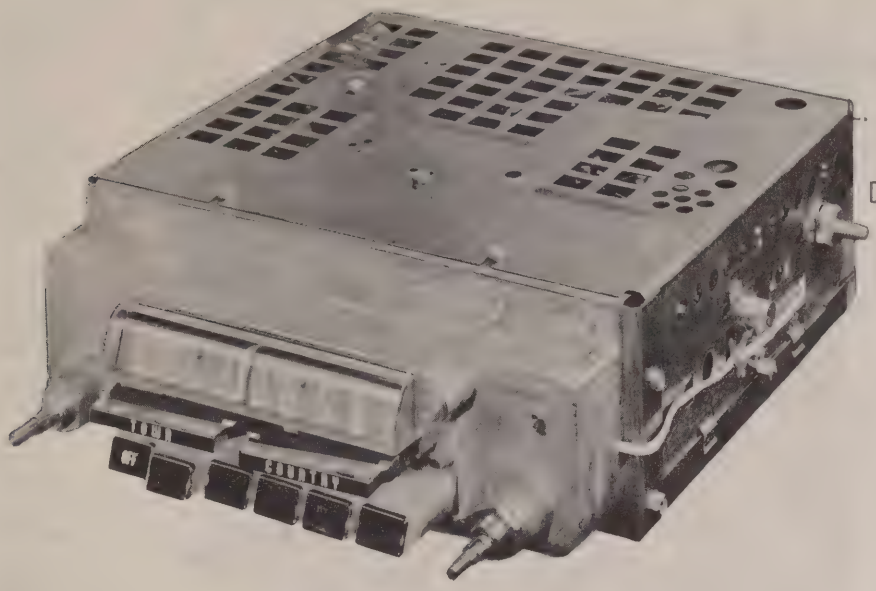


RF TUNER-TOP VIEW



RF TUNER-BOTTOM VIEW

LINCOLN-MERCURY
MODELS 78BL (HHK-18805-A), 78BM (FEK-18805-D)



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

LINCOLN-MERCURY
MODELS 78BL (HHK-18805-A), 78BM (FEK-18805-D)

TRADE NAME	Lincoln Model 78BL (HHK-18805-A), Mercury Model 78BM (FEK-18805-D) For 1957 Lincoln Or Mercury Automobiles
MANUFACTURER	Bendix Radio, Div. of Bendix Aviation Corp., Baltimore 4, Maryland
TYPE SET	Battery Operated Custom Built AM Automobile Receiver
TUBES (Eight)	Types 12BA6 RF Amp., 12BE6 Conv., 12AU6 IF Amp., 12AV6 Det.-AVC-AF Amp., (2) 12AB5 Output, 12AU7 Trigger Amp. - Relay Control, 12X4 Rectifier
POWER SUPPLY	12 Volt Storage Battery
RATING	3.8 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting. Tone control fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	262.5KC (Unmod.)	High frequency end stop.	DC probe to point (A). Common to point (B)	A1, A2, A3, A4	Adjust for maximum deflection. Repeat until no further increase is noted.
2.	Fig. 1	Thru dummy to antenna receptacle.	1605KC	High frequency end stop.	"	A5, A6, A7	Adjust for maximum deflection.
3.	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC, adjust A7 for maximum volume.						
	The following steps are not necessary unless tuner cores have been tampered with or replaced. Back tuning cores (A8, A9, A10) out of coils but not out of coil forms.						
4.	Fig. 1	Thru dummy to Ant. Receptacle.	1605KC	High frequency end stop.	DC probe to point (A). Common to point (B)	A5, A6, A7	Adjust for maximum deflection.
5.	"	"	1000KC	Adjust carriage 1/2" from high frequency end stop.	"	A8, A9, A10	Adjust for maximum deflection. Repeat steps 4 & 5 until no further increase is noted.

PUSHBUTTON ADJUSTMENT

1. Tune manually to desired station.
2. Pull pushbutton out and push the pushbutton in firmly.
3. Repeat on remaining pushbuttons.

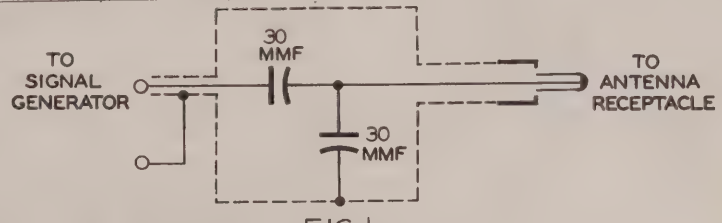


FIG. 1

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12AU6	
V4	Det. -AVC-AF Amplifier	12AV6	

ITEM No.	USE	TYPE	NOTES
V5	Output	12AB5	
V6	Output	12AB5	
V7	Trigger Amp. - Relay Control	12AU7	
V8	Rectifier	12X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	BENDIX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■ 20	350	220108-6	AFH3-107	CO800	FP329.5	TMT-92	T-470	TVL-3635
B	▲ 20	300							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	BENDIX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	4-75		219083-1							
C3	120		220348-407	NPO-SI120	TCZ-120	C10T12C	TCO-120		5TCC-120	5%
C4	100		2090058N-101M	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C5	.1	400	2090059C-104M	P488N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C6	8.2		220212-6	NPO-SI8.2		C10V82C	TCO-8.2			
C7	120-450		219090-3							
C8A	100		219090-4							
B	340-410									
C9	75		2090058J-750K	N750-SI75	TCN-75	C10Q75U	TC7-75	NT-5475	5TCU-Q75	N750
C10	100		2090058N-101M	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C11	.005	200	2090059B-502M	BPD-005	DD-502	CUB6D5	GP-5000	GEM-425	6TM-D5	
C12	10000		2090058S-103P	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C13	.0039	600		BPD-004	D6-402	CUB6D4	GP-4000	GEM-624	6TM-D4	Note 1
C14	.05	200	2090059B-503M	BPD-05	DF-503	CUB2S5		GEM-415	4TM-S5	
C15	.1	400	2090059C-104M	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C16	330		2090058N-331M	N750-SI330	TCN-330	C10T33U	TC7-330		5TCU-T33	N750
C17	.002	600	2090059D-202M	BPD-002	DD-202	CUB6D2	GP-2000	GEM-622	6TM-D2	
C18	100		2090058N-101M	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C19	.03	1000	2090059E-303K	P1088N-03		CUB10S3		GEM-1013	10TM-S3	
C20	.5	100	2090059A-504X	P288N-5		CUB2P5		GEM-205	2TM-P5	

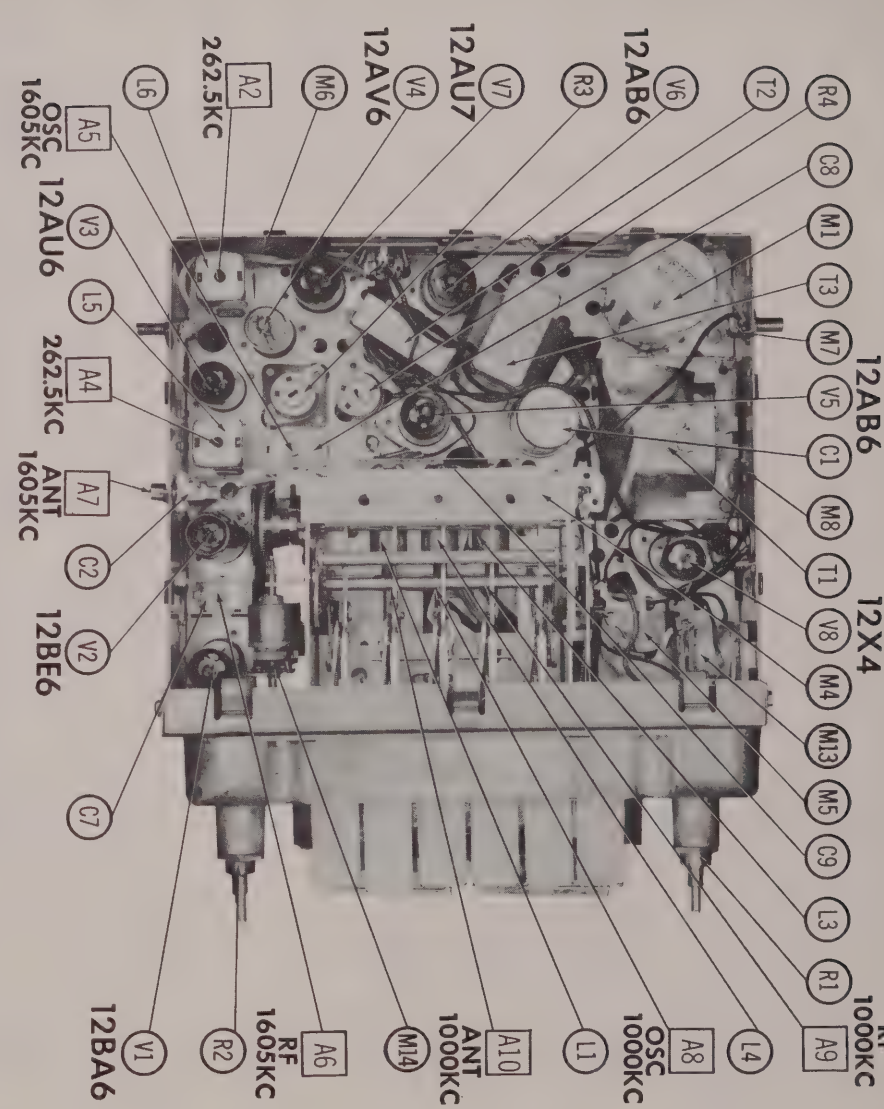
Note 1. Some versions use .004MFD @ 200 volts in this application. (Part #2090059B-402M).

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	BENDIX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	Switch		219669-5					Tone
B	1Meg	½						Volume, Tap @ 300K
R2	11.5Ω	2	219679-2					Fader, Rear Speaker (Wirewound)
R3	3000Ω	2	2090116-1					Listen Sensitivity (Wirewound)
R4	3000Ω	2	219555-8					Town Sensitivity (Wirewound)
R5	25Ω	2	①					Motor Speed (Wirewound)

① Part of motor mounting plate assembly (Part #2090118-1).

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	BENDIX PART No.	IRC PART No.	
R6	1Meg		220551B-105M	BTS-1Meg	
R7	10K	1	220551C-103K	BTA-10K	
R8	47K		220551B-473M	BTS-47K	
R9	68Ω		220551B-680M	BTS-68	
R10	15K	2	220604E-153	BTB-15K	
R11	220Ω		220551B-221M	BTS-220	
R12	220K		220551B-224M	BTS-220K	
R13	47K		220551B-473M	BTS-47K	
R14	10Meg		220551B-106M	BTS-10Meg	
R15	150Ω		220551B-151K	BTS-150	
R16	68K		220551B-683K	BTS-68K	
R17	27K		220551B-273K	BTS-27K	
R18	220K		220551B-224M	BTS-220K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	BENDIX PART No.	IRC PART No.	
R19	180Ω		220551B-181K	BTS-180	
R20	2200Ω		220551B-222M	BTS-2200	
R21	2.2Meg		220551B-225M	BTS-2.2Meg	
R22	1Meg		220551B-105M	BTS-1Meg	
R23	10Meg		220551B-106K	BTS-10Meg	
R24	22Meg		220551B-226K	BTS-22Meg	
R25	5.6Meg		220551B-565K	BTS-5.6Meg	
R26	1100Ω 5%		220551B-112J	BTS-1100 5%	
R27	10K 5%	1	220551C-103J	BTA-10K 5%	
R28	120K		220551B-124K	BTS-120K 5%	
R29	1000Ω	1	220551C-102K	BTA-1000	
R30	180Ω	1	220551C-181K	BTA-180	
R31	180Ω	1	220551C-181K	BTA-180	

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	BENDIX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12.6VCT @ 2.3A	540VCT @ .065A			282975-3	V-3903	P-2978	P-6489	22R52	V-31

TRANSFORMER (VIBRATOR)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	BENDIX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	2:	1	2090075-1	A2504 ② ③	A-3010①		20A16 ②		① Use original channel mtg. frame. ② Connect as autoformer. ③ Drill new mtg. hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	BENDIX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	9300Ω CT	3-4Ω	2090039-1	Z1005	A-2938	A-3850	24S52	S-51X	

SPEAKER

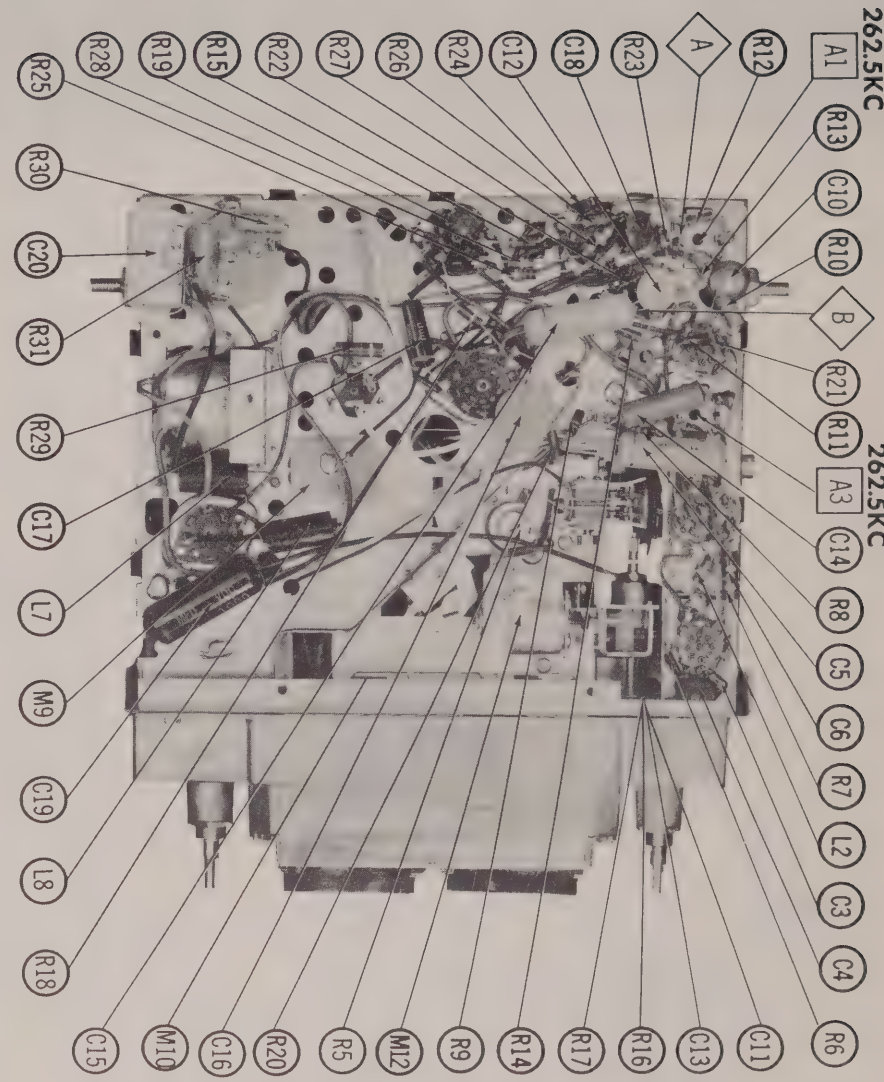
ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	BENDIX PART No.	QUAM PART No.	
SP1	6" X 9"	PM	3-4Ω	L222086-1 282634-4 ①	69A2 69A2	① Alternate Part No.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		BENDIX PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Antenna Coil					①
L2	RF Trap	2090088-1				50 Microhenries; Wound On 18K - Resistor
L3	RF Coil					①
L4	Osc. Coil					①
L5	1st IF	219806-3	16-6752	BC-350	12-H1	
L6	2nd IF	291807-6		BC-316		
L7	RF Choke	216188-8				
L8	Fil. Choke	216188-7				

① Part of tuner coil assembly, Part #2090131-7 or tuner assembly M4.

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				BENDIX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6V	115v	221139-1	6330	GI602/G883	6330	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			BENDIX PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	7 1/2 A	AGW-7 1/2	221634-6 *	30307.5 (7AG 7 1/2A)	155009	SFE 7 1/2	HRH

* Includes Lead Ass'y.

MISCELLANEOUS

ITEM No.	PART NAME	BENDIX PART No.	NOTES
M3	Dial Light		#57X
M4	Tuner	221482-1	Complete Assembly
M5	Spark Plate	220267-5	400MMF
M6	Spark Plate	220267-5	400MMF
M7	Spark Plate	220267-1	200MMF
M8	Spark Plate	220267-9	200MMF
M9	Spark Plate	220267-9	200MMF
M10	Switch	283808-2	Seek & Seek Sensitivity
M11	Switch	2090106-1	Foot
M12	Motor	2090049-1	
M13	Relay	2090089-1	Seek
M14	Clutch Assembly	2090046-1	Magnetic

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Bezel	685699-1	
Cover Assembly	2090117-1	Bottom
Cover Assembly	2090054-1	Top
Dial	2090002-1	
Pointer Assembly	2090129-7	

ADJUSTMENTS

SENSITIVITY ADJUSTMENTS

Connect output meter across speaker voice coil. Set volume control to maximum and tone control fully clockwise. Connect signal generator thru dummy antenna (refer alignment Fig. 1) to antenna input. Set generator to 1000KC (400% Mod.) and adjust for 3 microvolts output. Tune receiver for maximum output. Adjust R3 for a reading of 1.75 volts on the output meter.

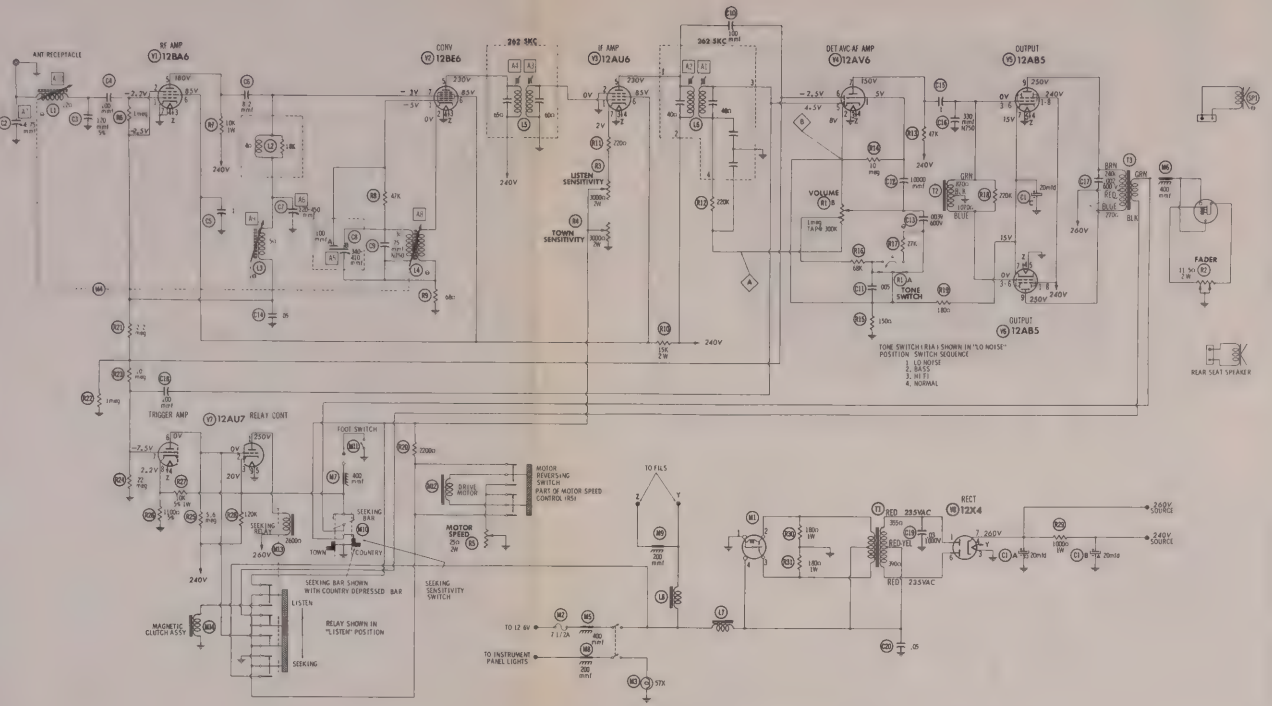
Increase the generator output to 250 microvolts. Turn R4 fully counter clockwise. Start tuner seeking by pressing town bar. Adjust R4 clockwise until tuner stops seeking.

To check adjust, decrease generator output to 125 microvolts and press town bar. Tuner should not stop.

MOTOR SPEED ADJUSTMENT

If the tuner does not complete one cycle in exactly 11 seconds, the motor speed should be adjusted.

With an input voltage of 14.4 volts DC, adjust R5 so that the tuner will make one complete tuning cycle in exactly 11 seconds. (A tuning cycle is defined as from one end of the dial to the other end and back to the starting point.)



RESISTANCE READINGS

STAT	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	4.2Meg	3.2Meg	2.2Ω	0Ω	† 11K	† 14K	0Ω		
V2	12BE6	47K	68Ω	2.2Ω	0Ω	† 1000Ω	† 14K	3.2Meg		
V3	12AU6	68Ω	0Ω	0Ω	2.2Ω	† 1000Ω	† 14K	3000Ω		
V4	12AV6	10Meg	150Ω	0Ω	2.2Ω	750K	1Meg	† 48K		
V5	12AB5	† 10000Ω	NC	820Ω	2.2Ω	0Ω	870Ω	330Ω	† 1000Ω	† 240Ω
V6	12AB5	† 10000Ω	NC	1070Ω	2.2Ω	0Ω	1070Ω	330Ω	† 10000Ω	† 270Ω
V7	12AU7	† 2600Ω	0Ω	11K	2.2Ω	0Ω	† 120K	11Meg	1100Ω	NC
V8	12X4	350Ω	NC	0Ω	2.2Ω	NC	390Ω	20K UNIA		

† MEASURED FROM PIN 7 OF V8.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections shown as bottom views
3. Measured values are from socket pin to common negative
4. Battery voltage maintained at 12.6 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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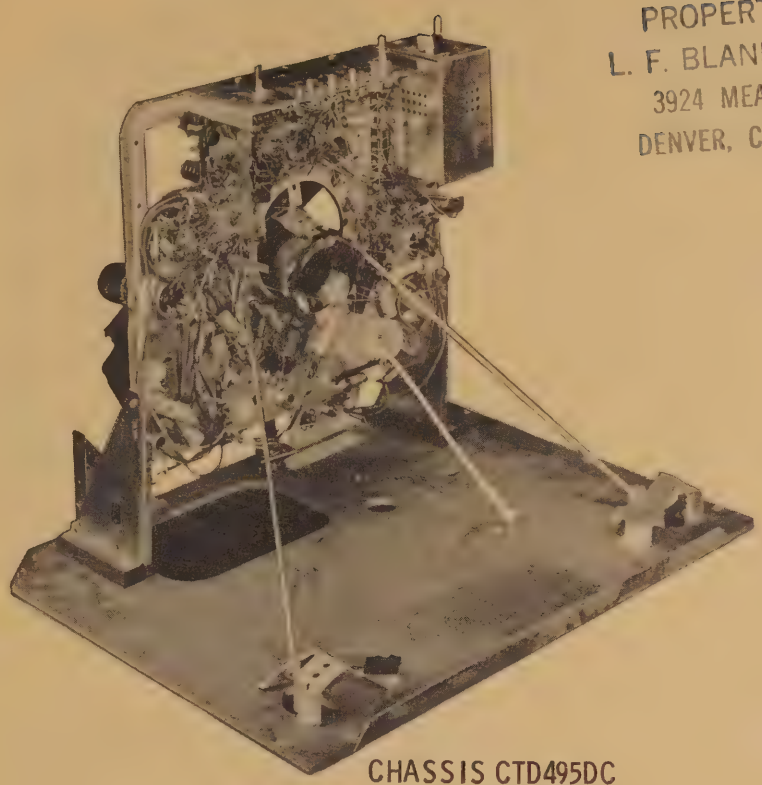

CHASSIS CTD495DC

MAGNAVOX CHASSIS CMUA/CTA487DC, CMUA/CTA490DC, CMUA/CTA491DC, CMUA/CTA499DC, CMUA/CTA501DC, CMUD/CTD495DC, CMUE/CTE493DC (117 Series)

TRADE NAME	Magnavox	CHASSIS	CMUA487DC, ED, CMUA490DC, ED, CMUA491DC, ED, CMUA499DC, ED, CMUA501DC, ED, CMUD495DC, ED, CMUE493DC, ED, CTA487DC, ED, CTA490DC, ED, CTA491DC, ED, CTA499DC, ED, CTA501DC, ED, CTD495DC, ED, CTE493DC, ED
MANUFACTURER	Magnavox Co., 2131 Bueter Road, Fort Wayne 4, Indiana		
TYPE SET	Television Receiver		
TUBES	Twenty		
POWER SUPPLY	110-120 Volts AC, 60 Cycle		RATING 190 Watts, 1.7 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

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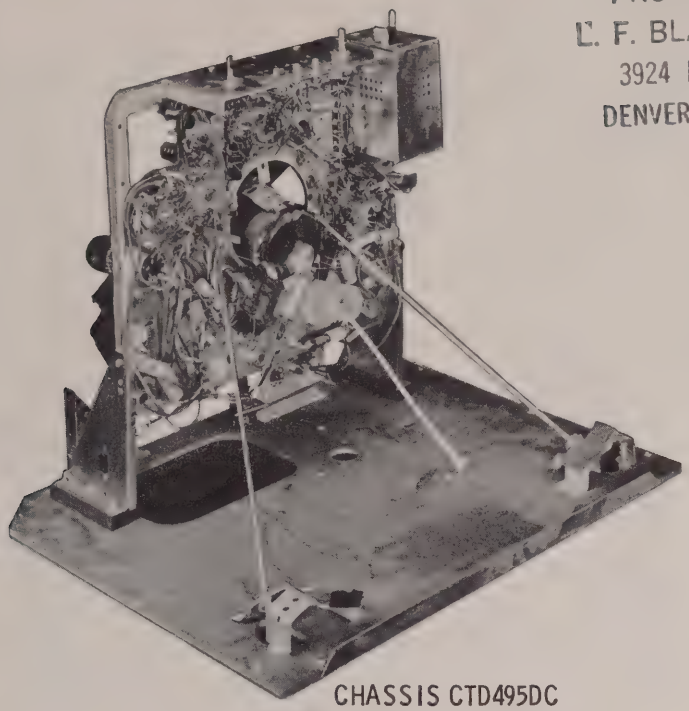

CHASSIS CTD495DC

CMUA487DC, ED, CMUA490DC, ED, CMUA491DC, ED,
CMUA499DC, ED, CMUA501DC, ED, CMUD495DC, ED,
CMUE493DC, ED, CTA487DC, ED, CTA490DC, ED,
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MAGNAVOX CHASSIS CMUA/CTA487DC, CMUA/CTA490DC, CMUA/CTA491DC, CMUA/CTA499DC, CMUA/CTA501DC, CMUD/CTD495DC, CMUE/CTE493DC (117 Series)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area. Adjust for best picture and sound.

FOCUS

Adjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the discriminator secondary (A13) located on top of the chassis.

FUSES

One fuse is used for horizontal sweep circuit protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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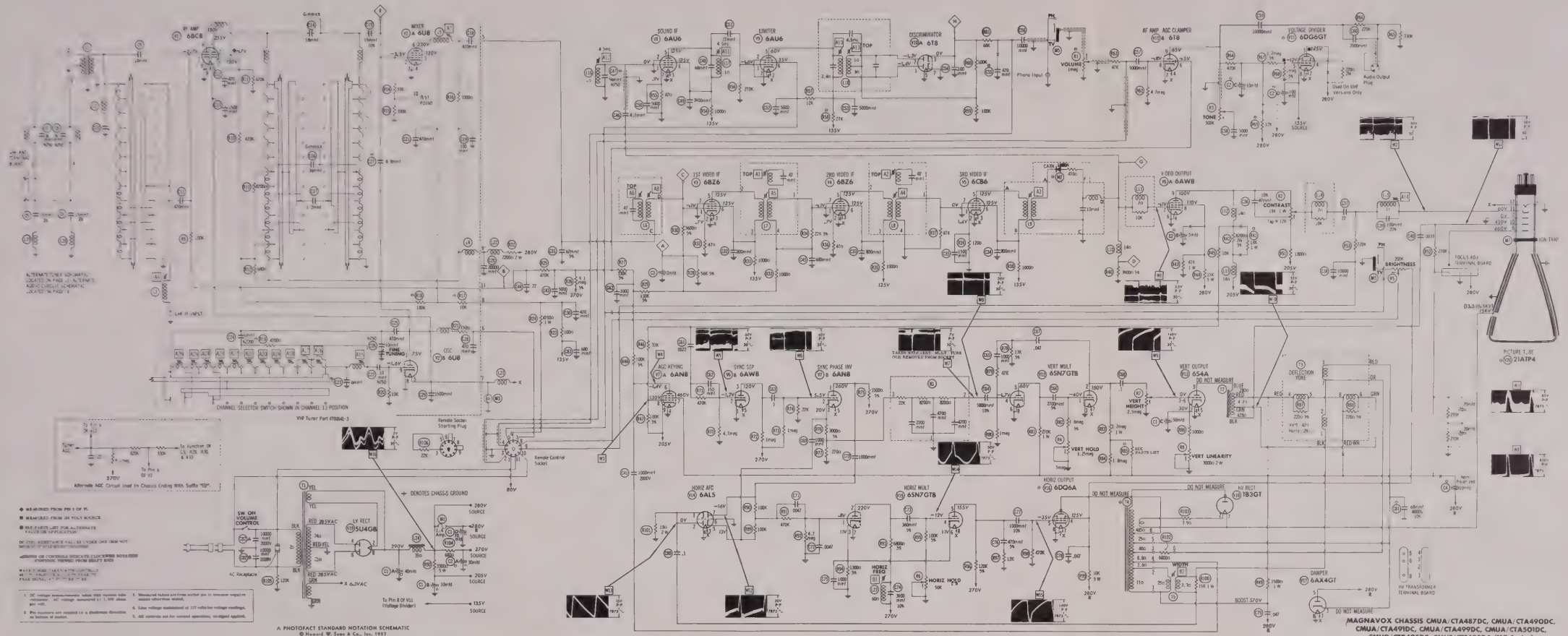
G943

DATE 9-57 SET 370 FOLDER 8


MAGNAVOX CHASSIS CMUA/CTA487DC, CMUA/CTA490DC, CMUA/CTA491DC, CMUA/CTA499DC, CMUA/CTA501DC, CMUD/CTD493DC, CMUE/CTE493DC (117 Series)
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALTERNATE TUNER SCHEMATIC
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
VHF Tuner Part #70842-3
Alternate AGC Circuit Used In Chassis Ending With Suffix "ED".
DENOTES CHASSIS GROUND
SW ON VOLUME CONTROL
AC Receptacle
LV RECT V19 5U4GB
RF AMP V1 6BC8
MIXER V2 A 6U8
OSC V3 B 6U8
SOUND IF V8 6AU6
LIMITER V5 6AU6
DISCRIMINATOR V19A 6T8
AF AMP AGC CLAMPER V12A 6T8
VOLTAGE DIVIDER V11 6DG6GT
1ST VIDEO IF V2 6BZ6
2ND VIDEO IF V4 6BZ6
3RD VIDEO IF V5 6CB6
VIDEO OUTPUT V9A 6AW8
AGC KEYING V7A 6AN8
SYNC SEP V6 B 6AW8
SYNC PHASE INV V7 B 6AN8
VERT MULT V13 6SN7GTB
VERT OUTPUT V14 6S4A
HORIZ AFC V14 6AL5
HORIZ MULT V15 6SN7GTB
HORIZ OUTPUT V16 6DQ6A
HV RECT V18 1B3GT
DAMPER V17 6AX4GT
PICTURE TUBE V20 21ATP4
HV TRANSFORMER TERMINAL BOARD
FOCUS ADJ TERMINAL BOARD
ION TRAP
CONTRAST
BRIGHTNESS
FINE TUNING
VOLUME
TONE
VERT HOLD
VERT LINEARITY
VERT SIZE
HORIZ HOLD
HORIZ FREQ
WIDTH
DEFLECTION YOKE
Remote Control Socket
Remote Socket Shorting Plug
Audio Output Plug
Used On Some Versions Only
DO NOT MEASURE
SOURCE

TUBE PLACEMENT CHART

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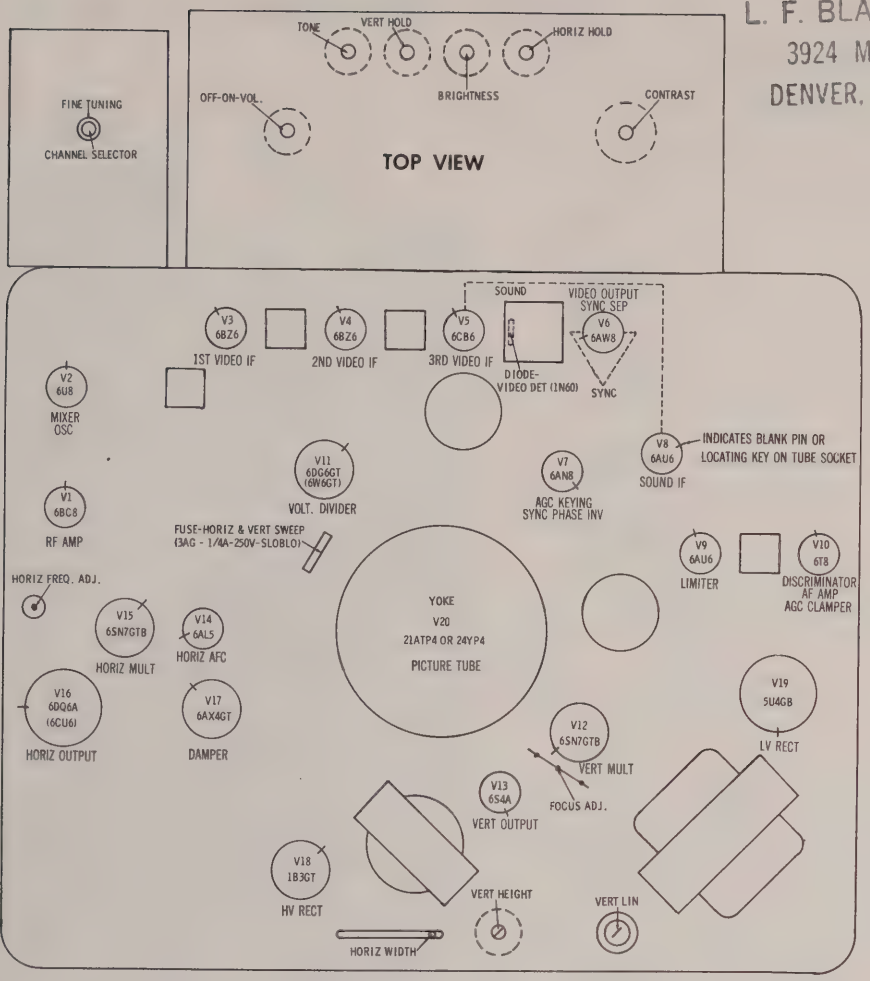


TUBE FAILURE CHECK CHART

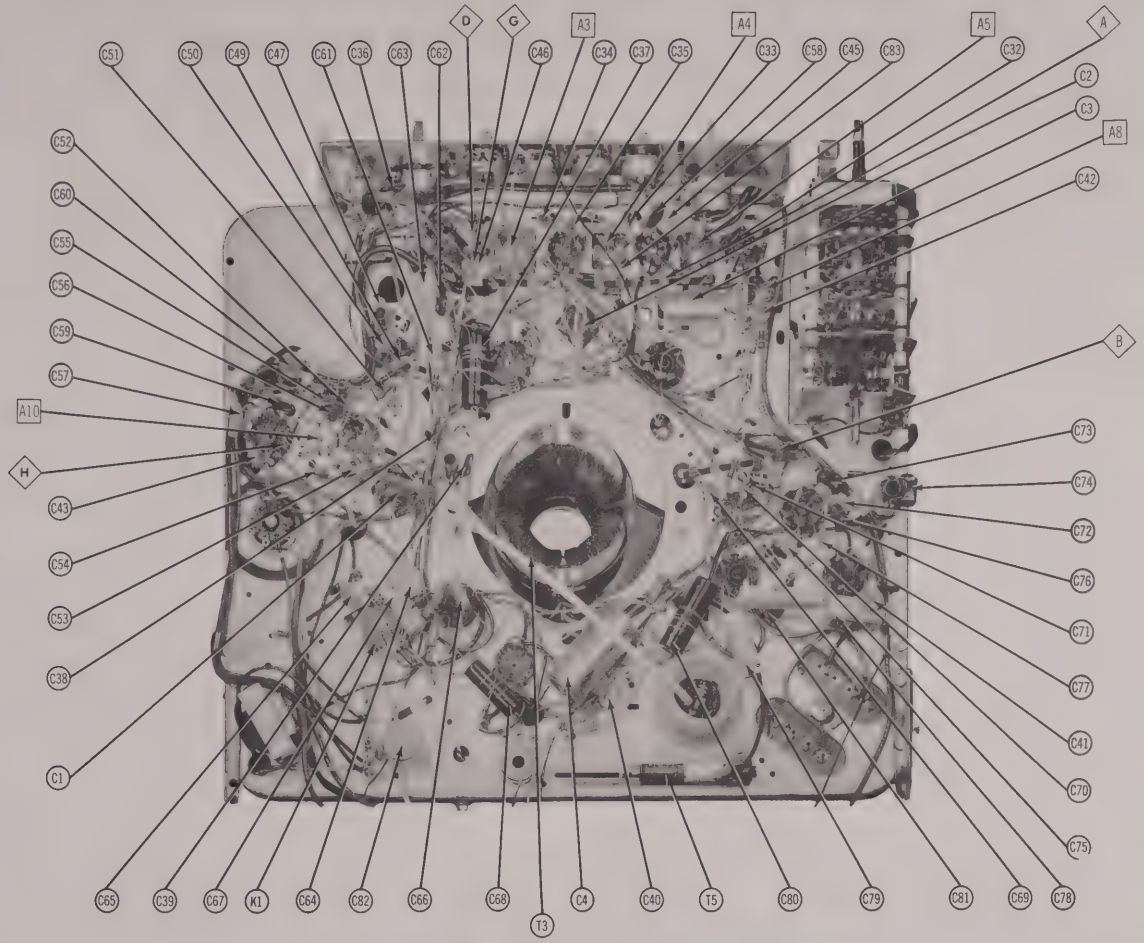
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **V19**

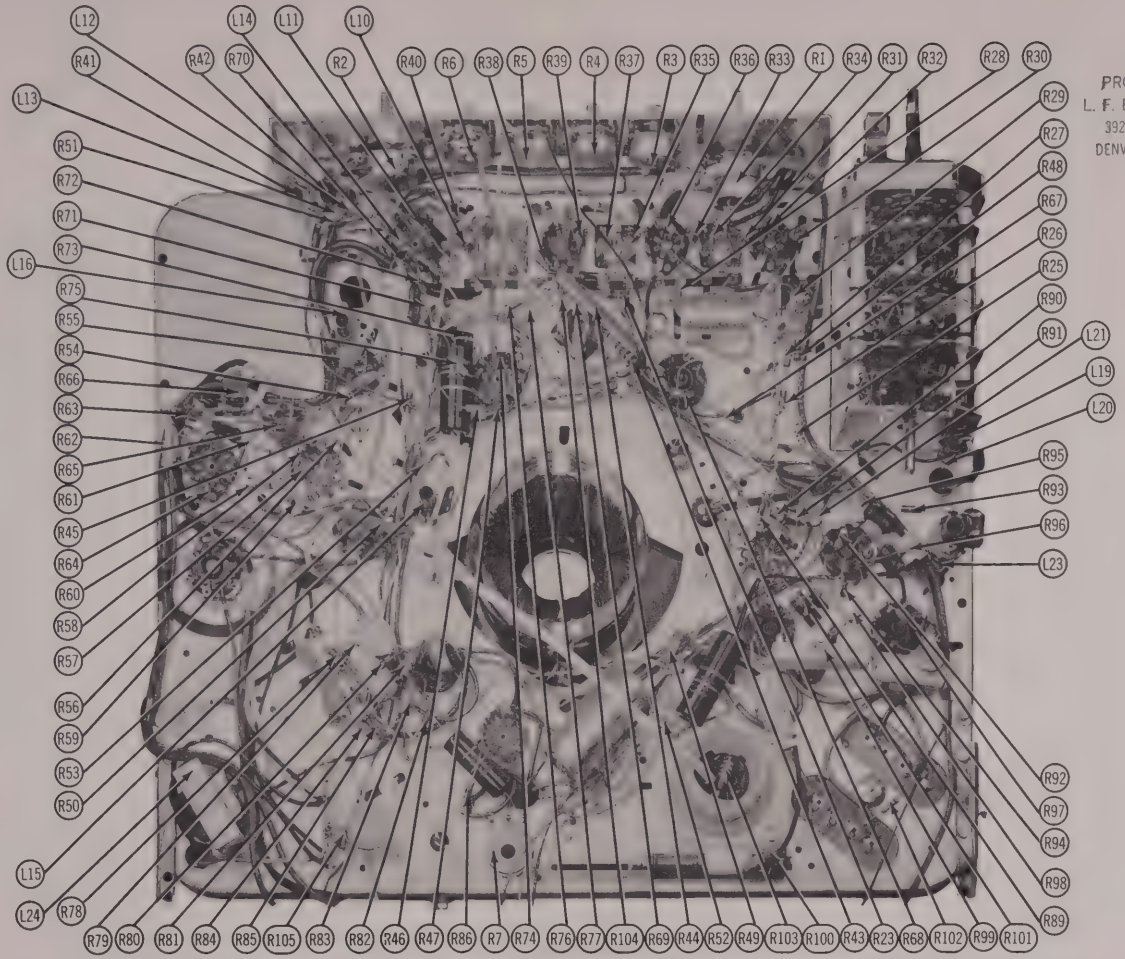
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, Diode (M2), V11**
No pic, no sound, has snow - **V1, V2, V3, V11**
No pic, has sound, has raster - **V6, V20**
Has pic, no sound - **V8, V9, V10, V11**
Overloaded picture - **V7**

SYNC FAILURE
No vert. sync - **V6, V7**
No horiz. sync - **V6, V7, V14**
No vert. or horiz. sync - **V6, V7**

SWEEP FAILURE
No raster, has sound - **Fuse (M1), V14, V15, V16, V17, V18, V20**
No vertical deflection - **V12, V13**
Poor vert. linearity or foldover - **V12, V13**
Poor horiz. linearity or foldover - **V15, V16, V17**
Narrow picture - **V15, V16, V17, V19**
Vert. off freq. - **V12**
Horiz. off freq. - **V15**



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



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CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point (A). Positive to chassis.
Connect the negative lead of a 1.5 volt bias supply to point (B). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	1000MMF	High side to point (C). Low side to chassis.	43.0MC (10MC Swp)	47.25MC	Any non-interfering channel	Vert. Amp. thru 10K to point (D). Low side to chassis.	A1, A2	Adjust sweep so that 47.25MC trap is visible. Adjust A1 and A2 to place marker in trap notch as in Fig. 1. This may be done with slugs at two different positions. Use position with slugs farthest out of coil forms.
2.	"	"	"	42.25MC 45.0MC 45.75MC	"	"	A3, A4, A5	Adjust for response similar to Fig. 2. Adjust A3 for maximum gain, A4 to place 45.75MC marker at 50% on curve and A5 to place 42.25MC at 50% on opposite side of curve. Recheck 47.25MC traps.
3.	"	High side to point (E). Low side to chassis.	"	41.25MC	"	"	A6	Adjust sweep so that 41.25MC trap notch is visible. Adjust A6 to place marker in trap notch as in Fig. 3. This may be done with slug in two positions. Use the one with slug farthest from coil.
4.	"	"	"	41.25MC 42.25MC 45.0MC 45.75MC 47.25MC	"	"	A7, A8	Adjust A7 for maximum gain with 45.75MC marker at 50% as in Fig. 2. Adjust A8 for maximum gain and proper tilt. It may be necessary to repeat these two adjustments. Recheck step 3.
5.	1000Ω Carbon Resistors	High side to point (F). Low side to chassis.	"	"	UHF	"	A9	Adjust for response similar to Fig. 2 with MINIMUM tilt.

SOUND IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.005MFD	High side to point (G). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point (H). Low side to chassis.	A10, A11, A12	Adjust for maximum deflection. Use only enough sweep generator output to provide a usable indication on VTVM.
7.	"	"	"	"	"	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

Tune in a TV station and tune the fine tuning slowly clockwise until 4.5MC beat interference becomes visible in the pattern. Adjust A14 until the horizontal scanning lines are smooth and continuous.

VHF OSCILLATOR ALIGNMENT

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Set the fine tuning control to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Fig. 4	Across VHF antenna terminals thru matching network (Fig. 4).	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point (D). Low side to chassis.	A15	Adjust to place sound marker in trap notch as in Fig. 5. Video marker should fall at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A16	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A17	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A18	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A19	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A20	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A21	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A22	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A23	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A24	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A25	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A26	

UHF TUNER AND VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

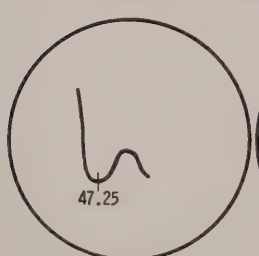


FIG. 1

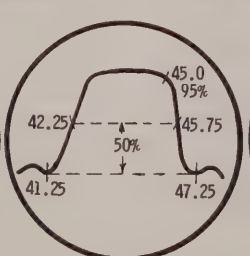


FIG. 2

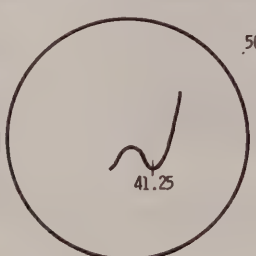


FIG. 3

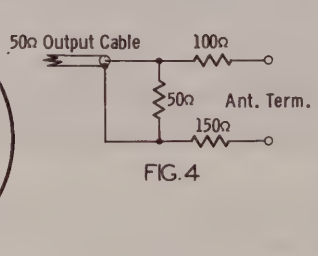


FIG. 4

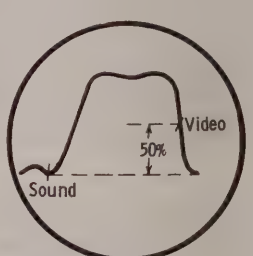


FIG. 5

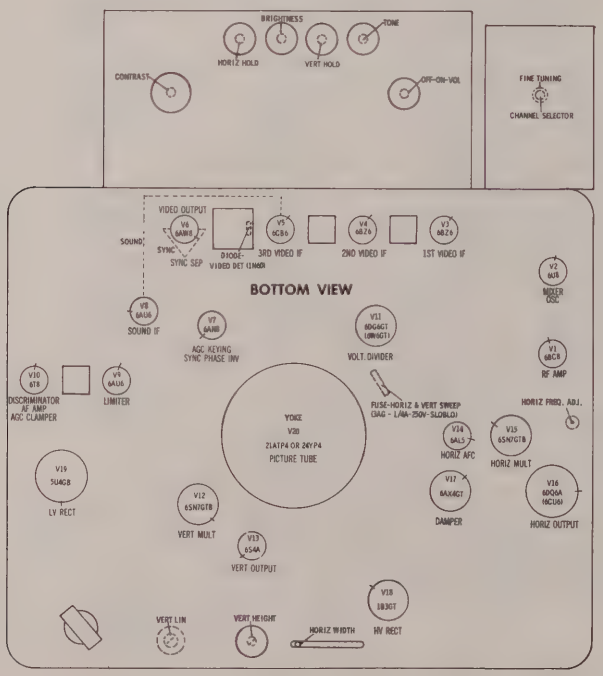
CHASSIS TOP VIEW

MAGNAVOX CHASSIS CMUA/CTA487DC, CMUA/CTA490DC,
CMUA/CTA491DC, CMUA/CTA499DC, CMUA/CTA501DC,
CMUD/CTD495DC, CMUE/CTE493DC (117 Series)

RESISTANCE MEASUREMENTS

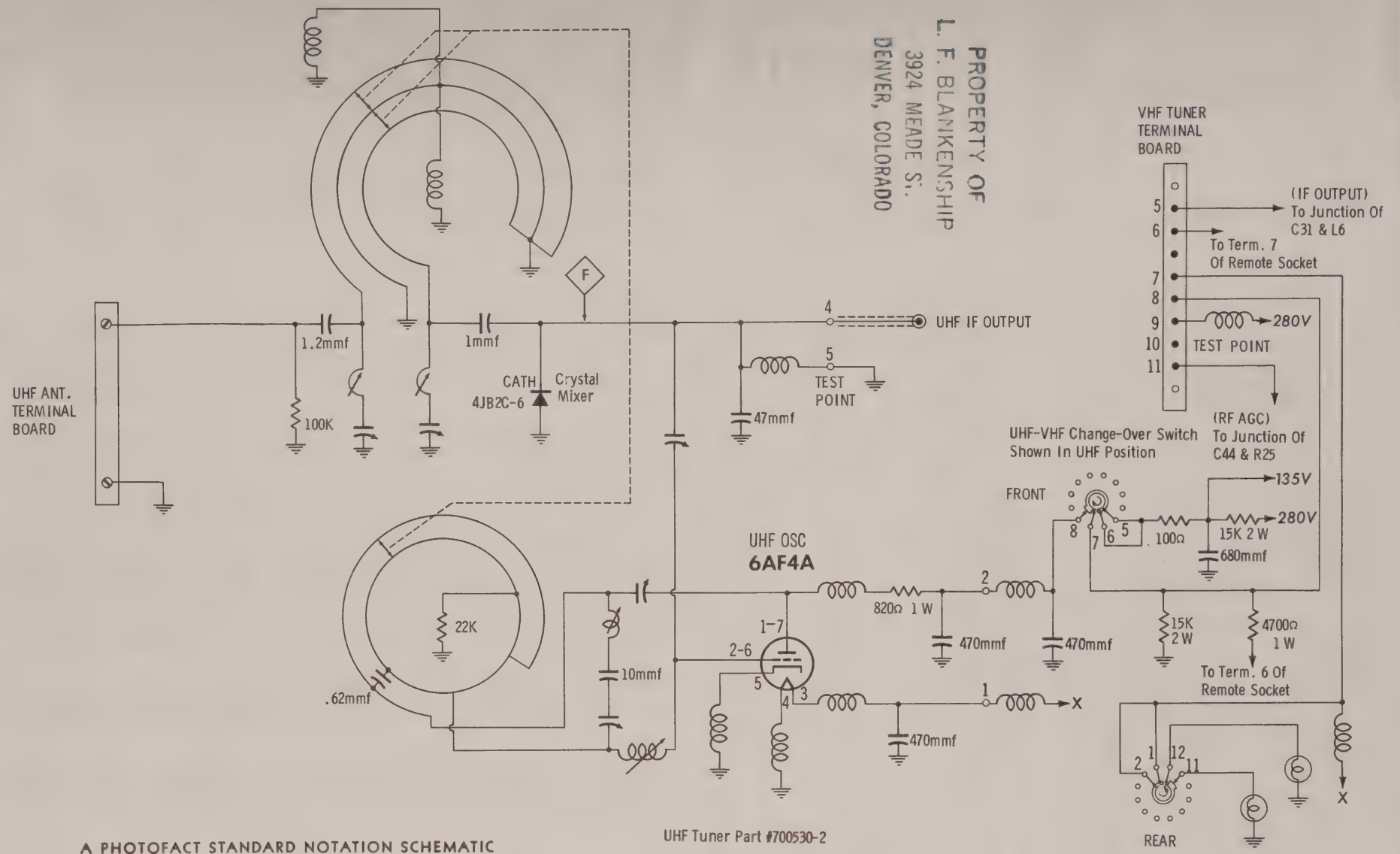
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BC8	† 2200Ω	230K	INF	0Ω	.1Ω	INF	1Meg	0Ω	0Ω
V2	6U8	▪ 4800Ω	360K	▪ 10K	0Ω	.1Ω	† 6500Ω	0Ω	0Ω	10K
V3	6BZ6	60K	47Ω	.1Ω	0Ω	▪ 1000Ω	▪ 1000Ω	0Ω		
V4	6BZ6	57K	47Ω	.1Ω	0Ω	▪ 1000Ω	▪ 1000Ω	0Ω		
V5	6CB6	.1Ω	120Ω	.1Ω	0Ω	▪ 1000Ω	▪ 1000Ω	0Ω		
V6	6AW8	0Ω	4.7Meg	† 1Meg	0Ω	.1Ω	0Ω	3900Ω	† 12K	† 7500Ω
V7	6AN8	† 3800Ω	22K	3300Ω	0Ω	.1Ω	280K	ǂ 1500Ω	† 35K	† 3300Ω
V8	6AU6	1Ω	0Ω	.1Ω	0Ω	▪ 1000Ω	▪ 1000Ω	82Ω		
V9	6AU6	270K	0Ω	.1Ω	0Ω	▪ 27K	▪ 39K	0Ω		
V10	6T8	100K	100K	200K	.1Ω	0Ω	460K	0Ω	4.7Meg	† 470K
V11	6DG6GT	NC	.1Ω	† 35Ω	† 35Ω	1Meg	TP	0Ω	¶	
V12	6SN7GTB	•1.8Meg	ǂ 1.7Meg	0Ω	1Meg	ǂ 270K	0Ω	.1Ω	0Ω	
V13	6S4A	NC	•2100Ω	•1.1Meg	0Ω	.1Ω	•1.1Meg	NC	NC	ǂ 2800Ω
V14	6AL5	18Ω	18Ω	.1Ω	0Ω	5.3Meg	0Ω	5.3Meg		
V15	6SN7GTB	4.7Meg	† 7800Ω	1300Ω	•110K	† 120K	1300Ω	0Ω	.1Ω	
V16	6DQ6A	TP	0Ω	TP	† 10K	470K	TP	.1Ω	0Ω	TOP CAP ǂ23Ω
V17	6AX4GT	NC	NC	¶	NC	† 35Ω	NC	.1Ω	0Ω	
V18	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ǂ 510Ω
V19	5U4GB	NC	¶	NC	24Ω	TP	21Ω	NC	¶	
V20	21ALP4A B	0Ω	0Ω	Pin 6 ǂ 1500Ω	Pin 10 ǂ 270K	Pin 11 260K	Pin 12 .1Ω			

TP TIE POINT
NC NO CONNECTION.
† MEASURED FROM PIN 8 OF V19.
• THIS READING WILL VARY CONTROL SET FOR NORMAL OPERATION.
▪ MEASURED FROM 135V SOURCE.
ǂ MEASURED FROM PIN 3 OF V17.
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.



TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ALTERNATE TUNER SCHEMATIC

MAGNAVOX CHASSIS CMUA/CTA487DC, CMUA/CTA490DC,
CMUA/CTA491DC, CMUA/CTA499DC, CMUA/CTA501DC,
CMUD/CTD495DC, CMUE/CTE493DC (117 Series)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amplifier	6BC8	
V2	Mixer-Osc	6U8	
V3	1st. Video IF Amp.	6BJ6	
V4	2nd. Video IF Amp.	6BJ6	
V5	3rd. Video IF Amp.	6CB6	
V6	Video Output, Sync Sep.	6AL5	
V7	AGC keying- Sync Amp. Inverter	6AN8	
V8	Sound IF Amp.	6AU6	
V9	Limiter	6AU6	

ITEM No	USE	TYPE	NOTES
V10	Discriminator-AF Amp. - AGC Clamper	6T8	
V11	Voltage Divider	6DG8GT	Note 1
V12	Vert. Mult.	6BN7GTB	
V13	Vert. Output	6B4A	
V14	Horiz. AFC	6AL5	
V15	Horiz. Mult.	6BN7GTB	
V16	Horiz. Output	6DQ6A	Note 2
V17	Damper	6AX4GT	
V18	HV Rectifier	1B3GT	
V19	LV Rectifier	5U4GB	

Note 1. Some versions may use a 6W6GT in this application.
Note 2. Some versions may use a 6CU6 or 6DQ6 in this application.

PICTURE TUBE

ITEM No	REPLACEMENT DATA			NOTES
	MAGNAVOX PART No	GENERAL ELECTRIC PART No	SYLVANIA PART No	
V20	21ATP4	21ATP4A 21ATP4	21ATP4 1 21ATP4A 2 21ATP4A 2	1 Aluminized 2 Silver Screen "B5"
	24YP4	24YP4 1	24YP4 2	

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA							
	CAP	VOLT	MAGNAVOX PART No	AEROVOX PART No	CORNELL-DUBILIER PART No	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No	NOTES
C1A	●40	350	27002I-52	RE1008	CM45D	FP350-53	TMQ-80	Q-012	TVL-4531	
B	●30	350			BR4035	TC39	TMQ-80 TD-40-350	MT 4510		
C	50	50								
D	●70	350								
C2A	●30	350	37003I-67 Note 1	AFH4-50- 93.4	CO880 BR1045	FP430.33		T-735 MT-4504	TVL-4634.7	
B	●5	350								
C	●40	350								
D	100	200								
C3	2	350	27037-22	SRE502V2	BBR2-50	TC302	TD-2-50	MT-0502	TVA-1301	
C4	10	350	27037-26 ↑Note 2	PRS350VNP	BR2045 BR2045	TC65 ● TC65 ●		MT-4520 MT-4520	R3237 * †	

Note 1. Chassis ending in suffix 'ED' use a 50-30-50MFD @ 350V and 100MFD @ 300V (part #27002-64) in this application.
Note 2. Not used in chassis ending with suffix 'ED'
† Non-polarized unit.
* Non-catalog item.
● Connect negative leads together

FIXED CAPACITORS

Capacity values given in the rating column are in mfd for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING		REPLACEMENT DATA							
	CAP	VOLT	MAGNAVOX PART No	AEROVOX PART No	CENTRALAB PART No	CORNELL-DUBILIER PART No	ERIE PART No	MALLORY PART No	SPRAGUE PART No	NOTES
C5	15		25020T-84		TCZ-15					2%
C6	15		25020T-84		TCZ-15					2%
C7	39		25017S-20	N750-SI 39	TCN-39	CU039U	TC7-39			N750
C8	39		25017S-20	N750-SI 39	TCN-39	CU039U	TC7-39			N750
C9	10		25022-12T	SI 10	DS-100	LT5Q1	GP-10	UC-641	SQA-Q1	
C10			25018I-6							
C11	470		25017S-8		BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47
C12	470		25017S-8		BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47
C13	1500		25017S-10		BPD-015	DD-152	BYA10D15	ED-1500	DC5215	SHK-D15
C14	18		25020I-4							
C15	15		25020T-5		NPO-SI 15	TCZ-15	TCQ-15C	TCO-15		STCC-Q15 10%
C16	15		25020I-5							
C17	1.5		25022I-115		NPO-SI 1.0	TCZ-1	CTA5V15C	TCQ-1		
C18	470		25017S-24		BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47
C19	100		25017S-24		BPD-001	DD-101	L10T1	ED-100	UC-531	SGA-T1
C20	20000		25017S-34		BPD-02	DD-203	BYB6E2	ED-02		SHK-E2
C21	470		25017S-8		BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47
C22	10		25020I-16							
C23	10		25020I-16							
C24	1		25020I-144							
C25	470		25017S-8		BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47
C26	10		25020I-138		NPO-SI 10	TCN-10	CTA5Q1U	TCQ-10	MT-541	STCU-Q1 N750
C27	6.8		25022I-125		NPO-SI 6.8	TCZ-6R8	CTA5Y58C	TCO-6.8	UC-5586	STCCB-V68 Note 1
C28	470		25017S-8		BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47
C29	1500		25017S-10		BPD-015	DD-152	BYA10D15	ED-1500	DC5215	SHK-D15
C30	470		25017S-8		BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47
C31	62		25022E-325		1469-000062	TCZ-62	22R5Q62	TCO-62		MD-462 5%
C32	800		25020I-14		BPD-0008	DD-801	L10T8	ED-0008		SGA-T8
C33	800		25020I-14		BPD-0008	DD-801	L10T8	ED-0008		SGA-T8
C34	800		25020I-18		BPD-0008	DD-801	L10T8	ED-0008		SGA-T8
C35	1500		25020I-18		BPD-015	DD-152	BYA10D15	ED-1500	DC5215	SHK-D15
C36	47		25022S-422		NPO-SI 47	TCZ-47	C10Q47C	TCO-47		STCC-Q47 10%
C37	24	400	27002I-15		CM45D		CTA5E4P22		GEM-4022	STM-P22
C38	10000		25017S-2		BPD-01	DD-103	BYA6E1	ED-01	DC501	SHK-E1
C39	100		25022P-530		1468-0001	DD-101	22R5T1	ED-100	MC-235	1FM-S1
C40	0.033	600	25019D1-4		C13S03	CUB6D33	1469-000333	GEM-4323	STM-D33	
C41	1000	2000	25017S-27		HVD-30-1000	DD30-102			30HKD-D1	
C42	500		25017S-28		BPD-001	DD-501	BYA5D1	ED-001	DC521	SHK-D1
C43	5000		25017S-30		BPD-005	DD-502	BYA5D5	ED-005	DC525	SHK-D6
C44	22	200	25020I-15		NPO-SI 22		CUB6P22		GEM-2022	STM-P22
C45	680		25022E-4		BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	SGA-T68
C46	4.7		25022I-123		NPO-SI 4.7	TCZ-4R7	C10V47C	TCO-4.7	ZT-5547	STCCB-V47
C47	68		25022E-7		NPO-SI 68	TCN-68	C10Q68U	TCO-68		N750 Note 2
C48	68		25021E-7		BPD-000068	DD-680	L-0Q68	ED-68	UC-5468	SGA-Q68
C49	3900		25017S-31		BPD-004	DD-402	L10E39	ED-394	UC-5394	SGA-Q39
C50	5000		25017S-1		BPD-005	DD-502	BYA5D5	ED-005	DC525	SHK-D5
C51	22		25022I-42		SI 22	DE-220	L7Q22	GP-22	UC-5422	SGA-Q22
C52	5000		25017S-1		BPD-005	DD-502	BYA5D5	ED-005	DC525	SHK-D5
C53	5000		25017S-1		BPD-005	DD-502	BYA5D5	ED-005	DC525	SHK-D5
C54	100		25020I-17		SI 100		L7E71	ED-100	UC-5431	SGA-T1
C55	470		25017S-8		BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47
C56	10000		25017S-2		BPD-01	DD-103	BYA6E1	ED-01	DC501	SHK-E1
C57	5000		25017S-1		BPD-005	DD-502	BYA5D5	ED-005	DC525	SHK-D5
C58	5000		25017S-30		BPD-005	DD-502	BYA5D5	ED-005	DC525	SHK-D5
C59	10000		25017S-2		BPD-01	DD-103	BYA6E1	ED-01	DC501	SHK-E1
C60	2000		25022E-18		BPD-002	DD-202	BYA10D2	ED-002	DC522	SHK-D2
C61	0.02	400	25023I-3		SI 3300	DE-333	CUB6D33	GP-2200	GEM-4323	STM-4D22
C62	150		25022P-534		BPD-00015	DD-151	6WST15	ED-150	UC-5315	1FM-S15
C63	43		25021E-13		P4E8H-1	DF-430	L10E43		GEM-443	4TM-P1
C64	5000		25022E-8		1464-005		1DR5D5			10%
C65	1000		25022E-8		BPD-001	DD-102	BYA6D1	ED-001	DC521	SHK-D1

ITEM No	RATING		REPLACEMENT DATA							
	CAP	VOLT	MAGNAVOX PART No	AEROVOX PART No	CENTRALAB PART No	CORNELL-DUBILIER PART No	ERIE PART No	MALLORY PART No	SPRAGUE PART No	NOTES
C66	2700		25010I-004S	1464-002T		1R5D27			MS-327	5%
C67	.047	400	25021I-7	BPD-05	DF-503	CUB4S47		GEM-4747	47M-P47	
C68	1	400	25021I-13	P4E8H-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C69	1000		25021E-8	BPD-001	DD-102	BYA6D1	ED-001	DC521	5HK-D1	
C70	1000		25021E-9	BPD-001	DD-102	BYA6D1	ED-001	DC521	5HK-D1	
C71	.0047	400	25021I-4	SR 4700	DF-472	CUB4D47	GP-4700	GEM-4347	47M-D47	
C72	.0047	200	25021I-5	SI 4700	DE-472	CUB4D47	GP-4700	GEM-4347	47M-D47	
C73	240		25022P-343	1469-000036		1R5T36			MS-336	5%
C74	3300		25022P-538	1464-00039		1R5D33			MS-333	10%
C75	1000		25021E-8	BPD-001	DD-103	BYA6D1	ED-001	DC521	5HK-D1	
C76	470		25022I-566	1464-000047		1R5T47			MS-347	5%
C77	1000		25021E-8			1R5D1	GP-1000	MC3B31		10%
C78	.047	400	25021I-11	BPD-05	DF-05	CUB4S47		GEM-4147	47M-S47	
C79	.047	400	25021I-11	BPD-05	DF-503	CUB4S47		GEM-4147	47M-S47	
C80	1	600	25030I-13	P6E8H-1	DD-104	CUB6P1			87M-P1	10% Note 5
C81	68	1000	25017S-32							
C82A	10000	2000	25021E-7	P2084CM-01					20HKD-S1	
B	10000	2000		P2084CM-01					20HKD-S1	
C83	680		25021E-8	BPD-00056	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	

Note 1. Chassis with tuners 700541-2 and 700541-4 use a 5MMF N330 capacitor in this application.
Note 2. Chassis ending with suffix 'ED' use a 68MMF (Part #25021E-7) in this application.
Note 3. Not used in Ch. CTA/CMUA48T, 48, 490, 50. Ch CTA/CMUA480 uses a 100MMF (Part #25020T-46) in this application.
Note 4. Ch. CTA/CMUA use a 1000MMF (Part #25017S-33) in this application.
Note 5. Chassis ending with suffix "ED" use a 47MMF ② 4000V (Part #25017S-83) in this application.

CONTROLS

ITEM No	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MAGNAVOX PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No	
R1A	1Meg	½	23103S-1	B-70	A47-1Meg-2	Q3-137	U53	Volume
B	Shaft			FS-3	FS-3	Not Req.	Not Req.	
C	Switch			KS-1	SWK-13	78-1	U3-36	
R2A	1Meg	½	23023S-48	B-70	A47-1Meg-2	Q3-137	U53	Volume - Note 1
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KS-1	SWK-13	78-1	U3-39	
R3	1MEG	1	23013I-7					Contrast Tap ② 1MEG
R3A	500K	½	23013I-4	B-60	A47-500K-2	Q3-153	TA55A	Tone
B	Shaft			Not Req.	FS3-1/4	Not Req.	Not Req.	
R4A	1.25Meg	½	23013I-3	BX-742	A47-1.5Meg-2	Q1-138	TA155L	Vert Hold
B	Shaft			Not Req.	FS3-1/4	Not Req.	Not Req.	
R5A	200K-S	½	23013I-2	BX-46	A47-200K-S	Q1-129	U43	Brightness
B	Shaft			Not Req.	FS3-1/4	Not Req.	Not Req.	
R6A	50K	½	23013I-1	BX-31	A47-50K-S	Q1-123	TA54L	Horiz. Hold
B	Shaft			Not Req.	FS3-1/4	Not Req.	Not Req.	
R7A	2.5Meg	½	23016I-2	B-53	A47-2.5Meg-2	Q1-219	TA255L	Vert Height
B	Shaft			Not Req.	FS3-1/4	Not Req.	Not Req.	
R8A	300Ω	2	23010I-3		39-3000		FL-4K	Vert Lin. -Wire Wound

Note 1. Alternate part number used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MAGNAVOX PART No	IRC PART No	
R9	100K		23104-86	BTS-100K	
R10	470K		23104-94	BTS-470K	
R11	470K		23104-94	BTS-470K	
R12	6.8Ω		23104-35	BTS-6R8	
R13	8200Ω		23104-73	BTS-8200	
R14	33K		23104-82	BTS-33K	
R15	330K		23104-93	BTS-330K	
R16	330Ω		23104-50	BTS-330	
R17	10K		23104-74	BTS-10K	Note 1
R18	180K		23104-89	BTS-180K	Note 2
R19	470Ω		23104-59	BTS-470	Note 3
R20	10K		23104-74	BTS-10K	
R21	150Ω		23104-47	BTS-150	
R22	2200Ω	2	23106-88	BTS-2200	
R23	100Ω		23104-45	BTS-100	
R24	4700Ω	1	23105-70	BTA-4700	
R25	470K		23104-94		
R26	5.1Meg	5%	23094-254		
R27	330K	5%	23094-219		
R28	56K	5%	23094-201	BTS-56K 5%	
R29	130K	5%	23094-230	BTS-130K 5%	
R30	3600Ω	5%	23094-178		
R31	1000Ω		23104-63	BTS-1000	
R32	47Ω		23104-48	BTS-47	
R33	1000Ω		23104-63		
R34	22K	5%	23094-184	BTS-22K 5%	
R35	1000Ω		23104-63	BTS-1000	
R36	47Ω		23104-48	BTS-47	
R37	47K		23094-199	BTS-47K 5%	
R38	1000Ω		23104-63	BTS-1000 5%	
R39	120Ω		23104-51	BTS-120	
R40	3900Ω	5%	23094-173	BTS-3900 5%	
R41	18K	1	23105-77	BTA-18K Note 4	
R42	5200Ω	5%	23094-188	BTS-5200 5% Note 5	
R43	47K	1	23105-82	BTA-47K	
R44	15K	5	23107-35	5/4A-15K	
R45	10K		23104-74	BTS-10K	
R46	33K		23104-80	BTS-33K	
R47	100K	5%	23094-207		
R48	100K	5%	23094-207		
R49	1500Ω	1	23105-06	BTA-1500	
R50	3300Ω	5	24007I-24	PWT-3300	
R51	180Ω		23104-46	BTS-1800	
R52	270K		23104-91	BTS-270K	
R53	220K		23104-90	BTS-220K	
R54	1000Ω		23104-63	BTS-1000	
R55	82Ω		23104-49	BTS-82	
R56	270K		23104-91	BTS-270K	
R57	12K		23104-75	BTS-12K	
R58	27K		23104-79	BTS-27K	

ITEM No	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MAGNAVOX PART No	IRC PART No	
R59	100K		23104-86	BTS-100K	
R60	100K		23104-86	BTS-100K	
R61	68K		23104-84	BTS-68K	
R62	4.7Meg		23104-106	BTS-4.7Meg	
R63	47K		23104-82	BTS-47K	
R64	470K		23104-94	BTS-470K	
R65	330K		23104-93	BTS-330K	
R66	220K		23104-90	BTS-220K	
R67	1.2Meg	5%	23094-233	BTS-1.2Meg 5%	
R68	1Meg	5%	23094-221	BTS-1Meg 5%	
R69	12K		23104-75	BTS-12K	Note 4
R70	4.7Meg		23104-108	BTS-4.7Meg	
R71	470K		23104-94	BTS-470K	
R72	1Meg		23104-98	BTS-1Meg	
R73	1Meg		23104-98	BTS-1Meg	
R74	22K		23104-78	BTS-22K	
R75	3300Ω	5%	23094-175	BTS-3300 5%	
R76	3000Ω	5%	23094-170	BTS-3000 5%	
R77	270Ω		23104-55	BTS-270	
R78	13K	5%	23094-188	BTS-13K 5%	
R79	47K		23104-82	BTS-47K	
R80	1Meg		23104-98	BTS-1Meg	
R81	270K	1	23105-81	BTA-270K	
R82	4.6Meg	5%	23094-236	BTS-4.6Meg 5%	
R83	1.2Meg	1	23105-99	BTA-1.2Meg	
R84	1.6Meg		23104-101	BTS-1.6Meg	Note 6
R85	10Ω		23104-35		
R86	1000Ω		23104-63	BTS-1000	
R87	220Ω	5%	23094-143		
R88	220Ω	5%	23094-143		
R89	100E		23104-86	BTS-100K	
R90	100E		23104-86	BTS-100K	
R91	470K		23104-94	BTS-470K	
R92	4.7Meg		23104-108	BTS-4.7Meg	
R93	6800Ω	5%	23094-179		
R94	1500Ω	5%	23094-164	BTS-1500 5%	
R95	100K	5%	23094-207	BTS-100K 5%	
R96	120K	5%	23094-209	BTS-120K 5%	
R97	15K		23104-75	BTS-15K	
R98	470K		23104-94	BTS-470K	
R99	100Ω	5	24007I-9	PWH-100	
R100	15K	1	23105-78	BTA-15K	
R101	15Ω	2	23104-41	BTS-18	
R102	6800Ω		23104-73	BTS-6800	
R103	3.9Ω		23107-3	BW1-3.9	
R104	680Ω		23104-80	BTS-680	
R105	120K		23010-1	BTS-120K	
R106	22K		23104-78	BTS-22K	

Note 1. Some versions may use a 100K in this application.
Note 2. Some versions may use a 330K in this application.
Note 3. Some versions may use a 560Ω in this application.
Note 4. Not used in chassis ending with suffix "ED".
Note 5. Chassis ending with suffix "ED" use a 5600Ω, 5% (Part #24007-2) in this application.
Note 6. This a special temperature compensating resistor, approximately 800K, cold.

TRANSFORMER (POWER)

ITEM No	RATING		REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	MAGNAVOX PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No
T1	115VAC @ 1.7A	580VCT @ .255A	5V @ 3A	6.3V @ 9.7A	30009I-1					R-84-BC ①

1 Fabricate mounting

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA								
		MAGNAVOX PART No	Halldorson PART No	Merit PART No	RCA TYPE No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
T2	Vert. Output	C-20203S-2							
T3	Yoke-Horiz. (21MID (90°) Vert. (45MH)	23080T-1 ①	DF607 ①	MDF-92 ①	235D1 ①	T90F19/43 ①	DY-18A ①	Y-16 ①	Y-41 ①
	Horiz. Output	3606S3				X152	A-8295 *	FLY-79 *	D-92
	Alt. Horiz. Output	3606S3-1				X152	A-8295 *	FLY-79 *	D-92
T5	Width Coil	MWC-103						CW-24 ③④	

① Includes resistors R87 and R88.
② Use original yoke damping network.
③ Use original core.
④ Use original mounting bracket.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

	ORIGINAL TERMINAL (CONNECTIONS)	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	6					8	8	
	5					5	6	
	3					3	3	
	4					4	5	
	2					2	4	
	1					1	1	
Coil Ends	Coil Assembly Connections	1 & 3				1 & 3	1 & 3	
	Special Notes					⑤		

⑤ If insufficient width, connect capacitor (approx. 50-100MMF ② 4KV), across horizontal yoke.

COILS (RF-IF)

ITEM No	USE	MAGNAVOX PART No	NOTES
L1	Ant. Trans.	3604S1-3	
L2	RF Choke	3606S1-8	4.7 Microhenries IRC Part #CLA
L3	UHF IF Input Coil	3606S9-1	
L4	RF Choke	3606S1-9	
L5	Mixer Plate Coil	3605S0-1	
L6	1st Video IF	3606S4-1	Includes 41.25MC Trap
L7	2nd Video IF	3606S4-1	Includes 47.25MC Trap
L8	3rd Video IF	3606S4-1	Includes 41.25MC Trap
L9	4th Video IF	3606S3-1	Includes Cap. Resistor, RF Choke, And M3
L10	Shunt Peaking Coil	3606S2-7	19-6400 6136 400 Microhenries
L11	Series Peaking Coil	3606S2-13	19-1300* 6132* 100 Microhenries; Wound On 10K Resistor
L12	Shunt Peaking Coil	3606S2-7	19-6400 6136 400 Microhenries
L13	Shunt Peaking Coil	3606S2-7	19-6400 6135 400 Microhenries
L14	Series Peaking Coil	3606S2-13	19-1300* 6132* 100 Microhenries, Wound On 10K Resistor
L15	4.5MC Trap	3605S4-1	20-1004 TV-151 1469
L16	1st Sound IF	3605S4-1	20-1004 TV-151 1469
L17	2nd Sound IF	3605S4-1	20-1004 TV-151 1469
L18	Discriminator	3606S2-1	17-3496 TV-134 6134
L19	RF Trap	3606S2-1	6604
L20	IF Trap	3606S2-1	6604
L21	RF Choke	3606S1-1	.47 Microhenry, IRC Part #CLA
L22	RF Choke	3606S1-1	.47 Microhenry, IRC Part #CLA
L23	RF Choke	3606S1-1	

* Parallel With 10K Resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No	DC RES.		MAGNAVOX PART No	MEISSNER PART No	MERIT PART No	MILLER PART No	RCA TYPE No.	Ram PART No	Thordarson PART No	NOTES
	PRI.	SEC.								
L23	60Ω	1.5Ω	3605T9-1		TV-165				R3-7*	22-78 Millihenries

* Drill new mounting hole.

FILTER CHOKE

ITEM No	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT / 1000 ℄)	MAGNAVOX PART No.	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No
L24	.285A	35Ω	.5Hy.	320058-3	C5037 ①	C-2996 ①	C-2326 ①	26C44 ①	C-27X ①

① Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MAGNAVOX PART No.	REPLACEMENT DATA
K1	Vertical Integrator	2200MMF, 4700MMF, 4700MMF 22K, 8200Ω, 8200Ω	250186-1	Sprague V-1 Centralab PC-100

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MAGNAVOX PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	1/4A 125V S/B	180157-30		313.250 (3AG 1/4A S/B	357001	MDL 1/4	4405

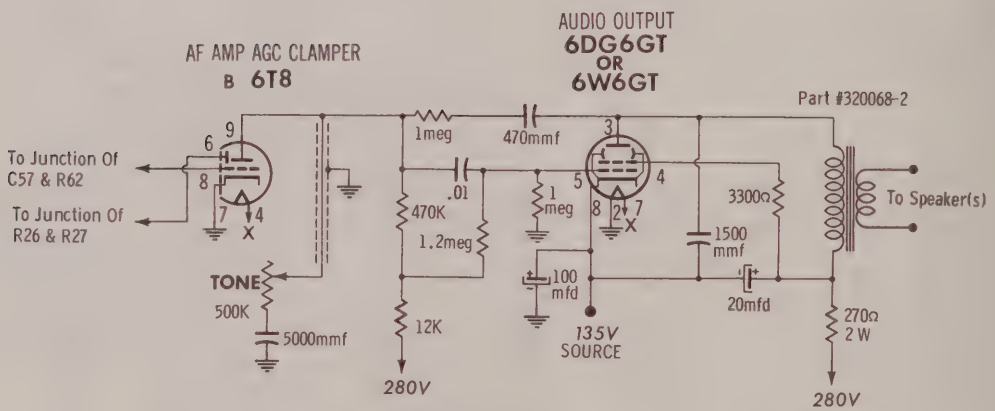
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MAGNAVOX PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N60 *		1N60	1N60	Video Det. (Pigtail)

* A 1N64 may be used in some versions.

MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
M3	Pilot Light		
M4	Tuner	700541-3	VHF
	Tuner	700530-2	UHF
M5	Switch	160232-1	Phono-TV Slide Type (DPDT) Ch. CTD/CMUD 495DC
	Switch	160229-1	Phono-TV Slide Type (DPDT) Ch. CTA/CMUA 501DC
M6	Centering Device	635116-1	
M7	Ion Trap	360492-7	Chassis CTA/CMUA491DC, CTD/CMUD495DC
		360492-5	Chassis CTA/CMUA487DC, 490DC, 499DC, 501DC, CTE/CMUE 493DC



Audio Amp & Audio Output Circuit Used In Some Versions

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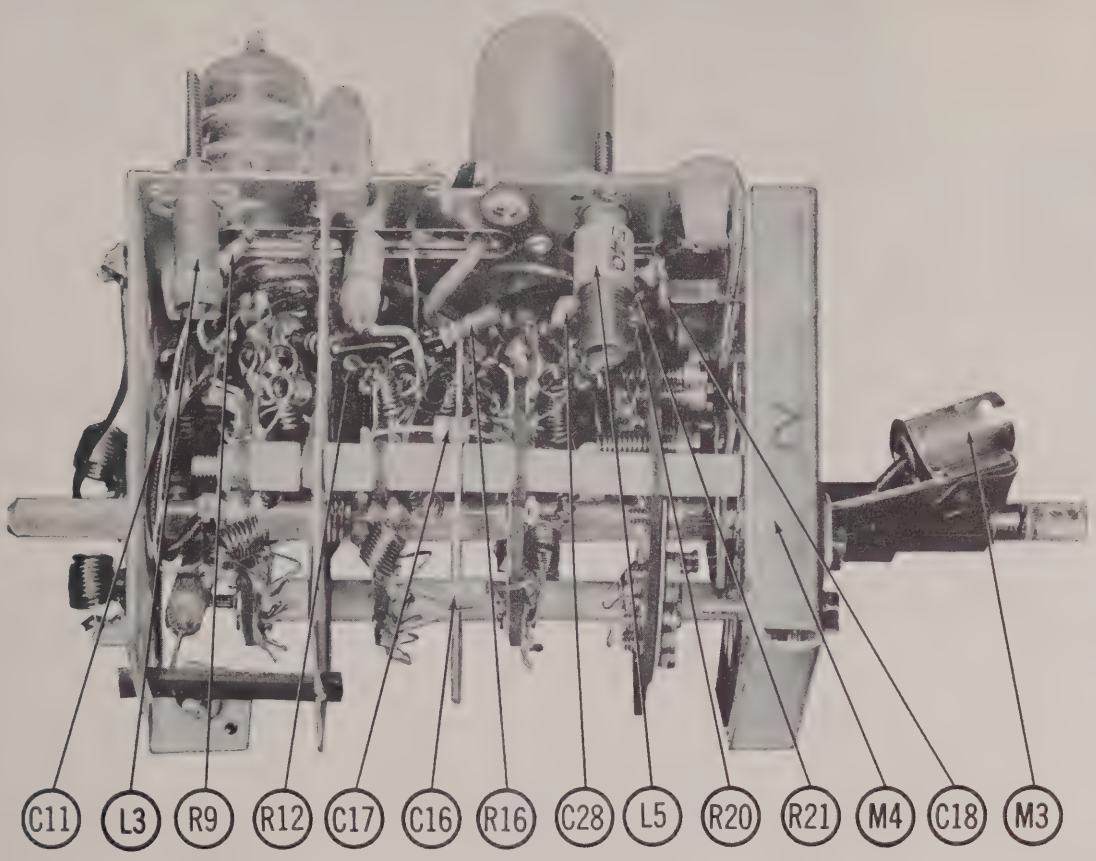
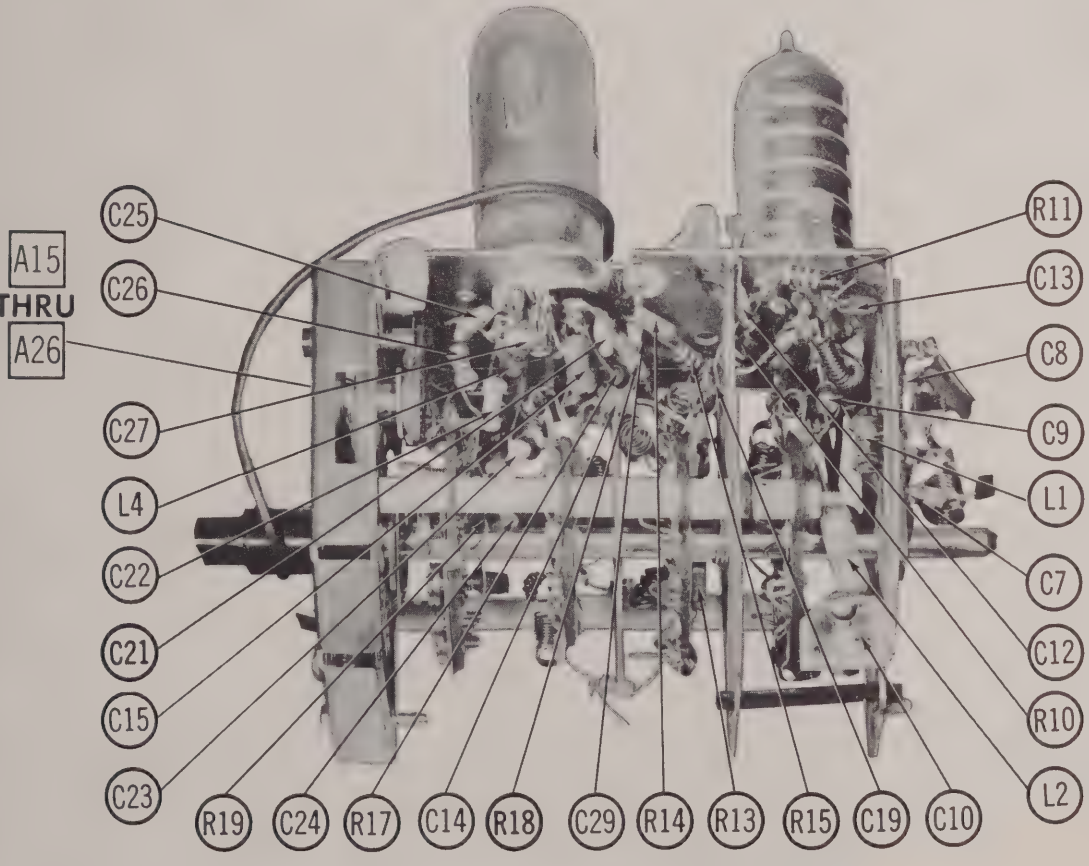
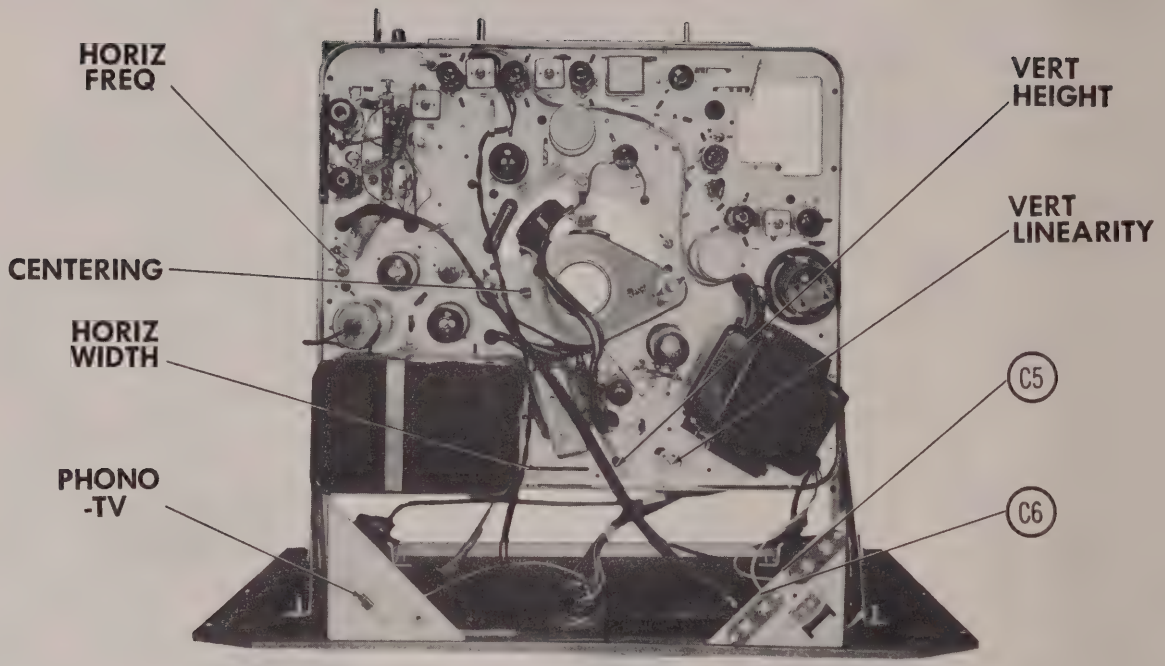
ALTERNATE AUDIO CIRCUIT



RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE



CHASSIS—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the horizontal hold control to the center of its range.

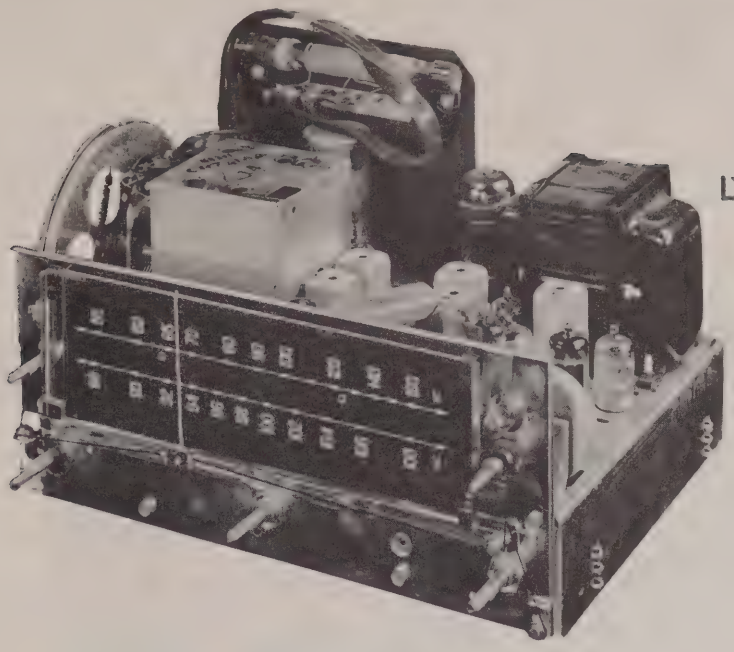
Turn the horizontal frequency slug (B1) slowly clockwise while switching off and on channel until the picture loses sync.

Turn B1 slowly counter clockwise until the picture regains sync, then continue one-half turn in the same direction.

The picture should hold sync at both extreme settings of the horizontal hold control.

If necessary, readjust B1 SLIGHTLY and test for sync pull-in as above.

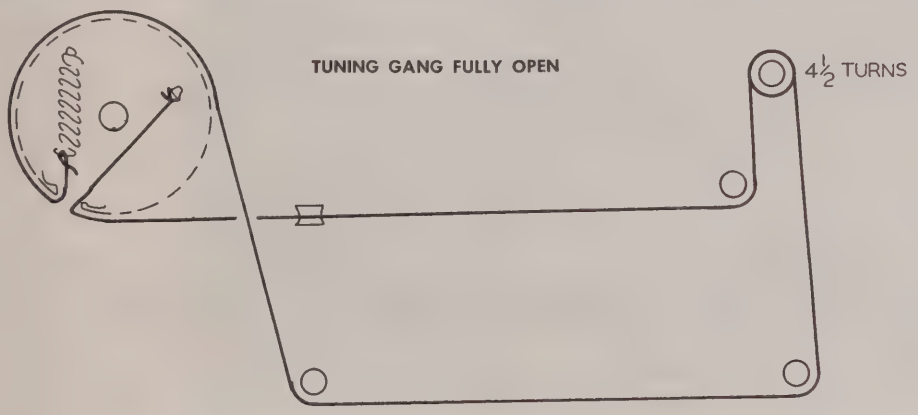
Adjust the width slug (B2) for a picture SLIGHTLY wider than necessary to fill the picture mask horizontally.



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

MAGNAVOX
CHASSIS CR-741

TRADE NAME	Magnavox Chassis CR-741AA		
MANUFACTURER	Magnavox Co., 2131 Bueter RD., Fort Wayne 4, Indiana		
TYPE SET	AC Operated FM-AM Receiver		
TUBES	Ten		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	.375 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	540KC-1620KC	FREQ. MOD.	88MC-108MC



DIAL CORD STRINGING

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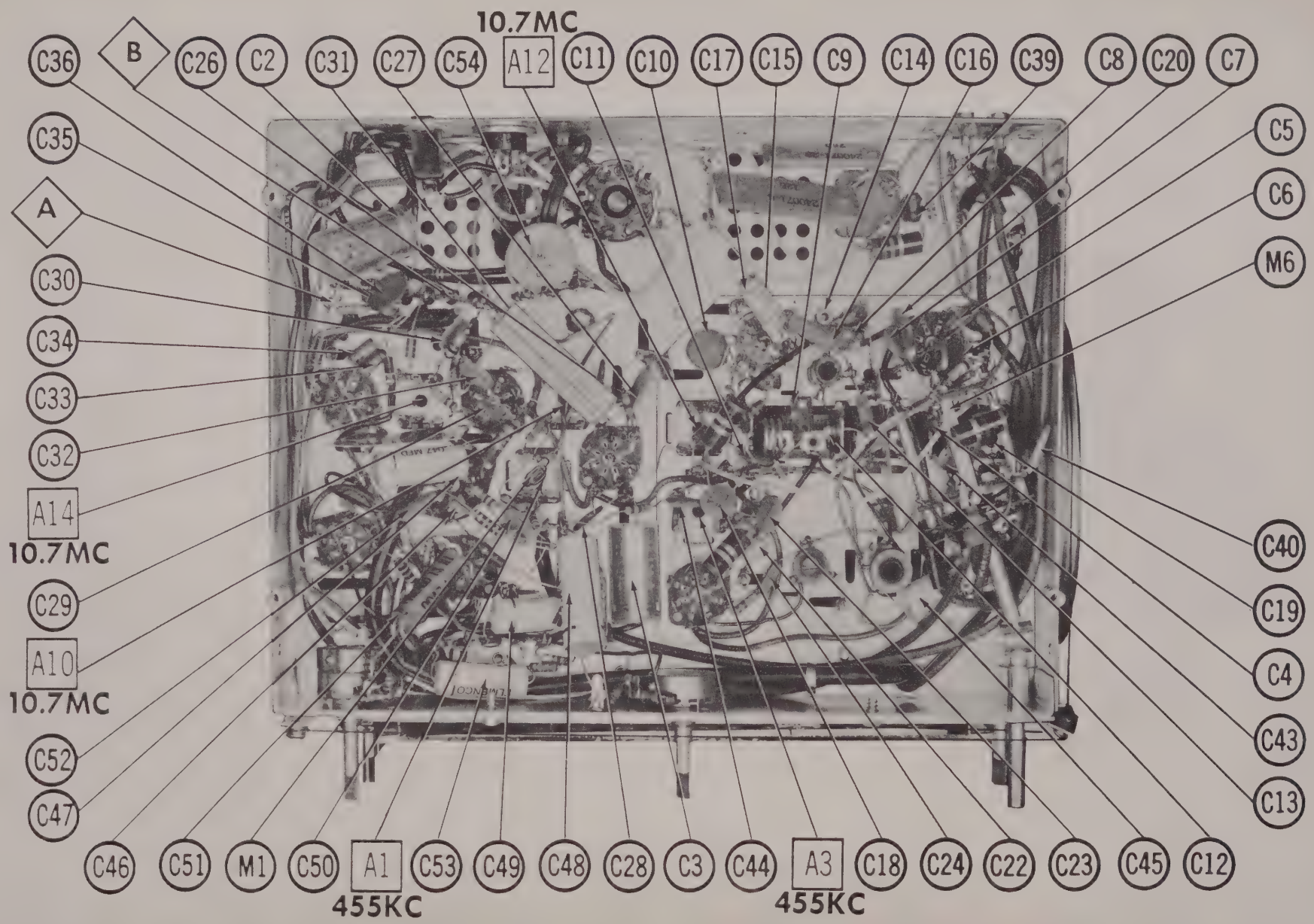
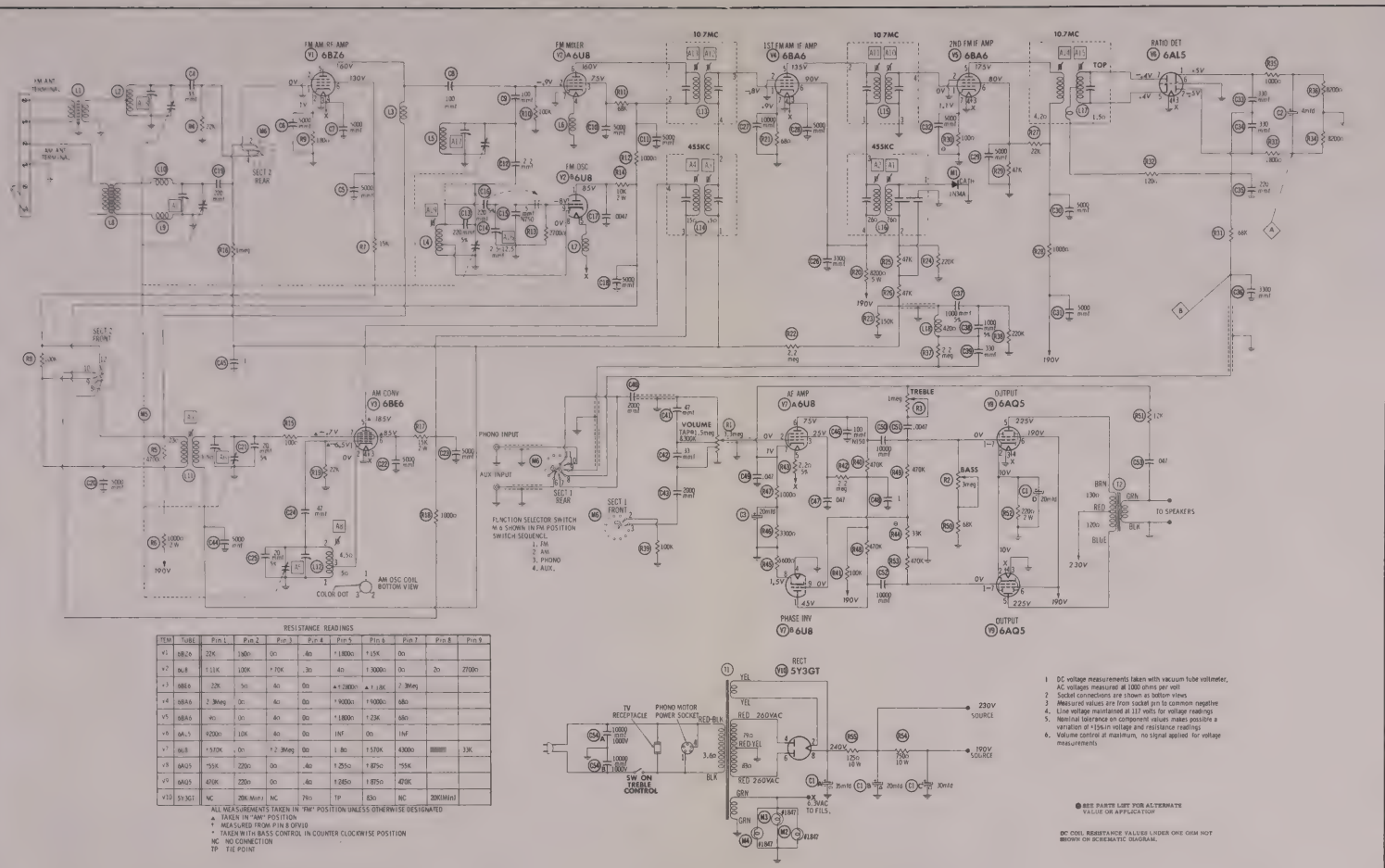


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	22K	1400Ω	0Ω	.4Ω	↑1800Ω	↑15K	0Ω		
V2	6U8	↑11K	100K	↑70K	.3Ω	4Ω	↑3000Ω	0Ω	2Ω	2700Ω
V3	6BE6	22K	5Ω	4Ω	0Ω	∞↑2800Ω	∞↑18K	2.2Meg		
V4	6BA6	2.2Meg	0Ω	4Ω	0Ω	↑9000Ω	↑9000Ω	68Ω		
V5	6BA6	4Ω	0Ω	4Ω	0Ω	↑1800Ω	↑23K	68Ω		
V6	6AL5	9200Ω	10K	4Ω	0Ω	INF	0Ω	INF		
V7	6U8	↑570K	0Ω	↑2.2Meg	0Ω	1.8Ω	↑570K	43000Ω		33K
V8	6AQ5	455K	220Ω	0Ω	.4Ω	↑255Ω	↑875Ω	455K		
V9	6AQ5	470K	220Ω	0Ω	.4Ω	↑285Ω	↑875Ω	470K		
V10	5Y3GT	NC	20K Min	NC	2KΩ	TP	83Ω	NC	20KΩ Min	

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
▲ TAKEN IN "AM" POSITION
↑ MEASURED FROM PIN 8 OF V10
* TAKEN WITH BASS CONTROL IN COUNTER CLOCKWISE POSITION
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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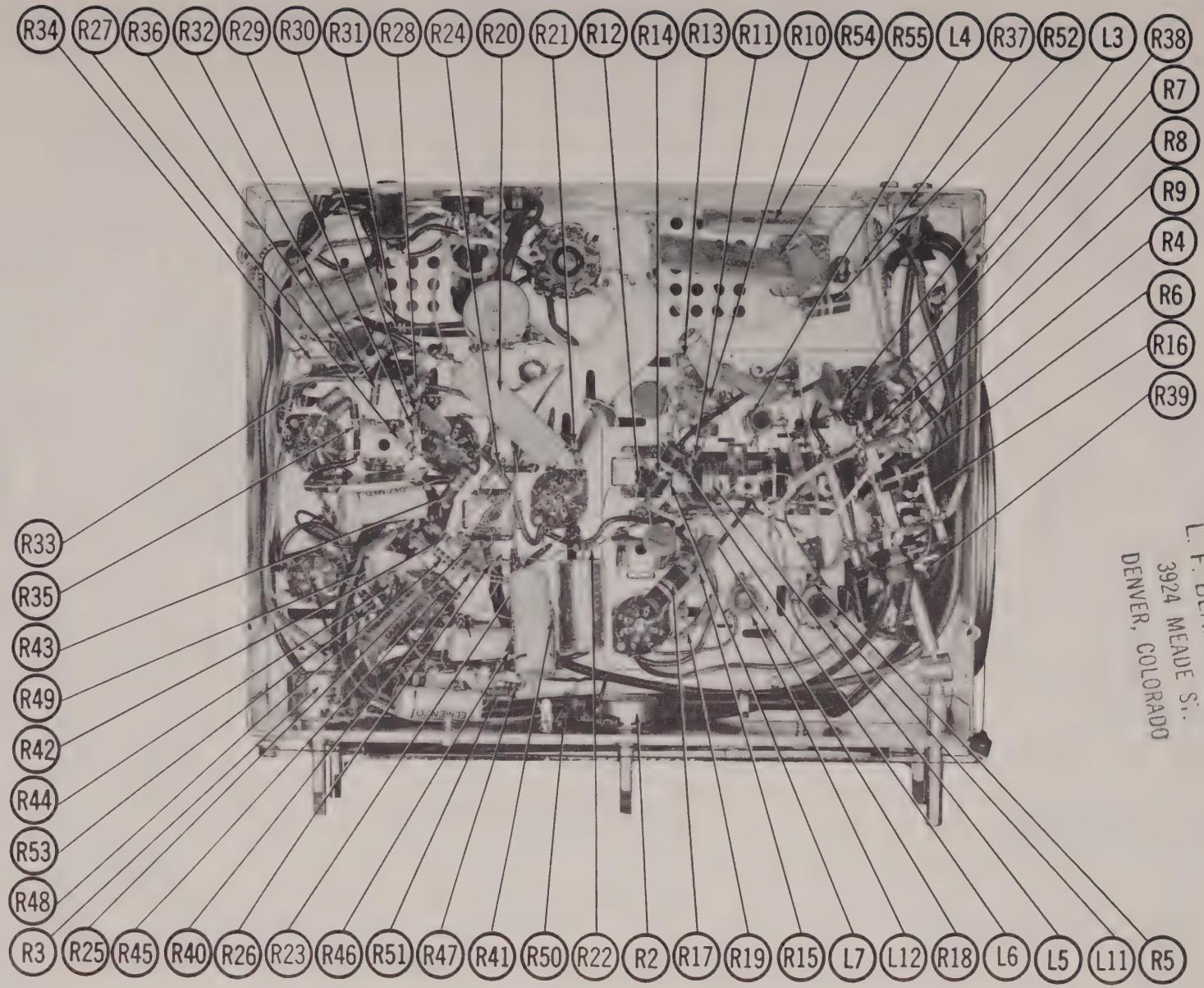

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DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

CHASSIS CR-741AA

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Treble to sharp tune position.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01MFD	High side to pin 7 (grid) of 6BE6 (V3). Low side to chassis.	455KC (400∿ Mod.)	AM	1000KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2	10MMF	High side thru dummy to AM Antenna terminal. Low side to chassis.	1400KC	"	1400KC	"	A5, A6 A7	"
3	"	"	600KC	"	600KC	"	A8, A9	Adjust for maximum output. Repeat step 1 & 2.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4	.01MFD	High side to pin 5 (plate) of 6BZ6 (V1). Low side to chassis.	10.7MC (unmod.)	FM	Low frequency end of dial	DC probe thru 1Meg to point (A) Common to chassis.	A10, A11, A12, A13, A14	Adjust for maximum deflection.
5	"	"	"	"	"	DC probe thru 1Meg to point (B) Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4	.01MFD & 1000Ω in series	High side to pin 5 (plate) of 6BZ6 (V1). Low side to chassis.	10.7MC (300KC Swp)	FM	Low frequency end of dial	Vert Amp. thru 1Meg to point (A) Low side to chassis.	A10, A11, A12, A13 A14	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5	"	"	"	"	"	Vert Amp. thru 100K to point (B) Low side to chassis.	A15	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6	120Ω & 150Ω Carbon Resistors	High side thru 120Ω to FM Antenna terminal. Low side thru 150Ω to chassis.	106MC	FM	106MC	DC probe thru 1Meg to point (A) Common to chassis.	A16, A17, A18	Adjust for maximum deflection.
7	"	"	90MC	"	90MC	"	A19	Adjust for maximum deflection. Repeat steps 6 & 7.

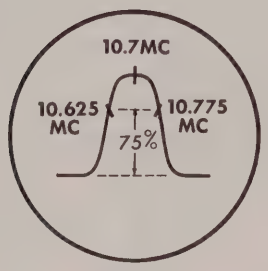


FIG. 1

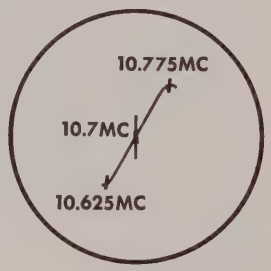


FIG. 2

MAGNAVOX

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BZ6	
V2	FM Mixer-Oscillator	6U8	
V3	AM Converter	6BE6	
V4	1st. IF Amplifier	6BA6	
V5	2nd FM IF Amplifier	6BA6	

ITEM No.	USE	TYPE	NOTES
V6	Ratio Detector	6AL5	
V7	AF Amp. - Phase Inverter	6U8	
V8	Output	6AQ5	
V9	Output	6AQ5	
V10	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

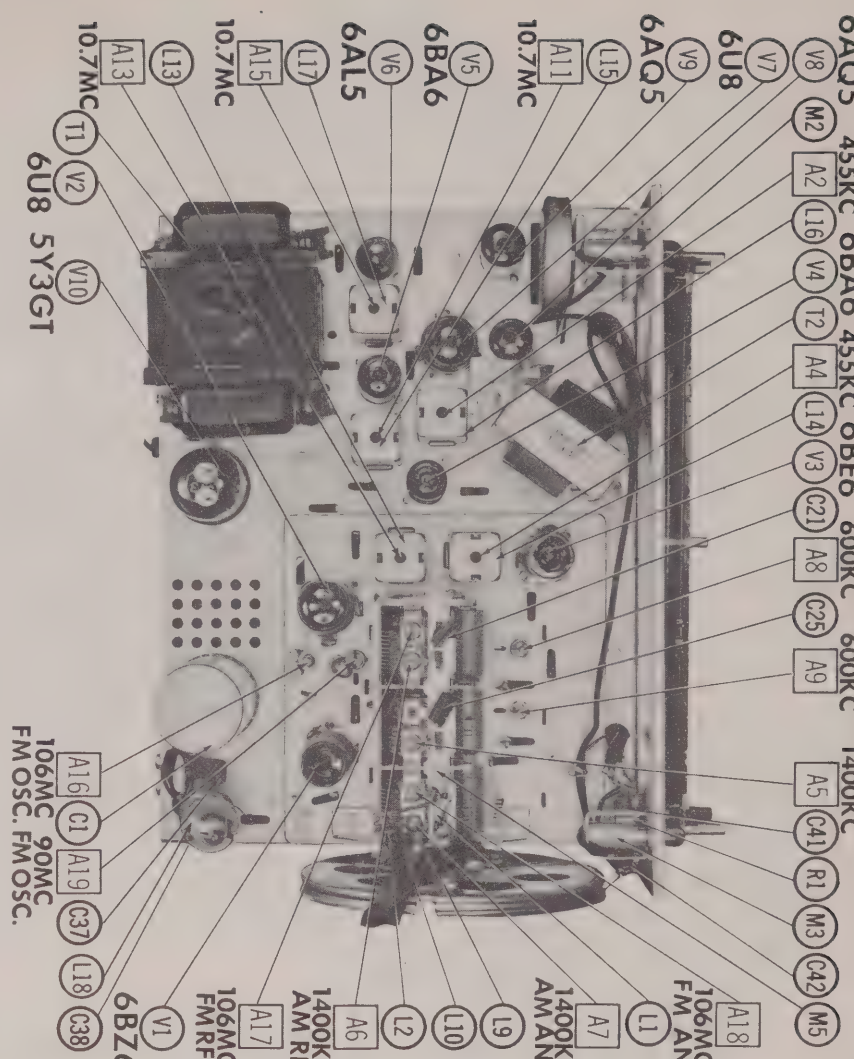
ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲35	450	270021-59	AFH4-79	C1060	FP345.3	TMQ-87	Q-380	TVL-4737
B	▲20	450			BR3045	TC77	TD-8-450	FM-4510	
C	■30	450							
D	20	25							
C2	4	50	270027-27	SRE50V5	BBR4-50	TC30	TD-4-50	FM-0504	TVA-1303
C3	20	25	270027-28	SRE25V20	BBR20-25	TC26	TD-20-150	MMT-0220	TE-1206

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	33		250187-47	1468-000033	DD-330	5W5T22	ED-33	UC-5433	1FM-433	
C5	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C6	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C7	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C8	100	500	250187-53	1468-001	DD-101	5W5T1	ED-100	MC235	1FM-31	
C9	100	500	250187-53	1468-001	DD-101	5W5T1	ED-100	MC235	1FM-31	
C10	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C11	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C12	2.2		250221-118	NP0-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	
C13	220	500	250159-55	1469-00022	TCZ-220	22R5T22	TCO-220		MS-322	5%
C14	2.5-12.5		250188-9							
C15	5		250088-138	N750-SI 5	TCN-5	C10V5U	TC7-5	NT-555	5TCUB-V5	N750
C16	220	500	250159-55	1469-00022	TCZ-220	22R5T22	TCO-220		MS-322	5%
C17	.0047	400	250211-5	BPD-0047	DD-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C18	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C19	220	500	250187-57	1468-00022	DD-221	5W5T22	ED-220	UC-5322	1FM-322	
C20	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C21	20	500	250187-5	1469-00002	TCZ-20	22R5Q2	TCO-20	ZT-542	MS-42	5%
C22	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C23	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C24	47	500	250187-49	1468-000047	DD-470	22R5Q47	ED-47	UC-5447	1FM-447	
C25	20	500	250187-5	1469-00002	TCZ-20	22R5Q2	TCO-20	ZT-542	MS-42	5%
C26	3300		250175-28	BPD-0033	D6-332	BYA10D33	ED-0033	UC-5233	5HK-D33	
C27	10000		250218-19	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C28	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C29	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C30	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C31	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C32	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C33	330		250207-49	SI 330	D6-331	LT6T33	GP-330	UC-5333	5GA-T33	
C34	330		250207-49	SI 330	D6-331	LT6T33	GP-330	UC-5333	5GA-T33	
C35	220		250218-5	BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C36	3300		250175-28	BPD-0033	D6-332	BYA10D33	ED-0033	UC-5233	5HK-D33	
C37	1000		250228-354	1464-001		1R5D1	CY20C102J	MCE255	MS-21	5%
C38	1000		250228-354	1464-001		1R5D1	CY20C102J	MCE255	MS-21	5%
C39	330		250207-49	SI 330	D6-331	LT6T33	GP-330	UC-5333	5GA-T33	
C40	2000		250218-20	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C41	47		250218-17	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C42	33		250218-21	BPD-000033	DD-330	L10Q33	ED-33	UC-5433	5GA-Q33	
C43	2000		250218-20	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C44	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C45	.1	200	250202-13	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C46	100		250218-22							N150
C47	.047	200	250211-11	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C48	.1	400	250211-13	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C49	.047	400	250211-11	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C50	10000		250218-19	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C51	.0047	400	250211-5	BPD-0047	DD-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C52	10000		250218-19	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C53	.047	200	250211-11	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C54A	10000	1000	250219-3	P1088N-01	DD-103	BYA10S1		GEM-1011	20HKB-S1	
B	10000	1000		P1088N-01	DD-103	BYA10S1		GEM-1011	20HKB-S1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	3.3Meg	½	220131-3				UDT-303	Volume, Tap ⓐ 300K & 1.5Meg
R2A	3Meg	½	220072-27	B-85	A47-3Meg-Z	Q13-140	U57	Bass
B	Shaft			Not req.	FS-3	Not req.	Not req.	
R3A	1Meg	½	220073-20	B-70	A47-1Meg-Z	Q13-137	U53	Treble
B	Shaft			Not req.	FS-3	Not req.	Not req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	IRC PART No.	NOTES
R4	22K		230104-78	BTS-22K	
R5	4700Ω		230104-70	BTS-4700	
R6	1000Ω	2	230096-62	BTB-1000	
R7	15K		230104-76	BTS-15K	
R8	100K		230104-86	BTS-100K	
R9	180Ω		230104-53	BTS-180	
R10	100K		230104-86	BTS-100K	
R11	68K		230104-84	BTS-68K	
R12	1000Ω		230104-62	BTS-1000	
R13	2700Ω		230104-67	BTS-2700	
R14	10K	2	230096-74	BTB-10K	
R15	100Ω		230104-50	BTS-100	
R16	1Meg		230104-98	BTS-1Meg	
R17	15K	2	230096-76	BTB-15K	
R18	1000Ω		230104-62	BTS-1000	
R19	22K		230104-78	BTS-22K	
R20	8200Ω	5	240071-13	PW10-8200	
R21	68Ω		230104-48	BTS-68	
R22	2.2Meg		230104-102	BTS-2.2Meg	
R23	150K		230104-88	BTS-150K	
R24	220K		230104-90	BTS-220K	
R25	47K		230104-82	BTS-47K	
R26	47K		230104-82	BTS-47K	
R27	22K		230104-78	BTS-22K	
R28	1000Ω		230104-62	BTS-1000	
R29	47K		230104-82	BTS-47K	

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	IRC PART No.	NOTES
R30	100Ω		230104-50	BTS-100	Note 1
R31	68K		230104-84	BTS-68K	
R32	120Ω		230104-51	BTS-120	
R33	1800Ω		230104-65	BTS-1800	
R34	8200Ω		230104-73	BTS-8200	
R35	1000Ω		230104-62	BTS-1000	
R36	8200Ω		230104-73	BTS-8200	
R37	2.2Meg		230104-102	BTS-2.2Meg	
R38	220K		230104-90	BTS-220K	
R39	100K		230104-86	BTS-100K	
R40	470K		230104-94	BTS-470K	
R41	100K		230104-86	BTS-100K	
R42	2.2Meg		230104-102	BTS-2.2Meg	
R43	2.2Ω 5%		230109-2		
R44	33K		230104-80	BTS-33K	Note 2
R45	5600Ω		230104-71	BTS-5600	
R46	3300Ω		230104-68	BTS-3300	
R47	1000Ω		230104-62	BTS-1000	
R48	470K		230104-94	BTS-470K	
R49	470K		230104-94	BTS-470K	
R50	68K		230104-84	BTS-68K	
R51	12K		230104-75	BTS-12K	
R52	220Ω	2	230106-54	BTB-220	
R53	470K		230104-94	BTS-470K	
R54	750Ω	10	240071-23	PW10-750	
R55	125Ω	10	240071-6	1 3/4A-125	

Note 1. Some versions may use a 68Ω ½W Resistor (Part #230104-48)
Note 2. Some versions may use a 470K ½W Resistor (Part #230104-94)

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ⓐ .375A	550VCT ⓐ .110A	5VAC ⓐ 2A	6.3VAC ⓐ 3.6A	300081-3	P9208 ① ②		PC-8405 ① ②	22R05 ① ② ③	R-12A ① ②

① Drill new mounting holes.
② Tape center tap on 6.3V Winding.
③ Use universal mounting brackets.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6500Ω CT	3-4Ω	330039-1	Z1007	A-2901	A-3823	24S61	S-53X	

COILS (RF-IF)

ITEM No.	USE	MAGNAVOX PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Trans.	360491-3				
L2	FM Ant. Coil	360656-1				
L3	RF Choke	360522-9	19-1002		4606	2 Microhenries
L4	FM Osc. Coil	360628-1				
L5	FM RF Coil	360629-1				
L6	Fil. Choke	360522-9	19-1002		4606	2 Microhenries
L7	Fil. Choke	360522-9	19-1002		4606	2 Microhenries
L8	Loop Stick	460894-3				
L9	Ant. Coil	360522-9	19-1002		4606	2 Microhenries
L10	Ant. Coil	360522-9	19-1002		4606	2 Microhenries
L11	AM RF Coil	360348-2			A-5495-RF	
L12	AM Osc. Coil	360407-2	14-1033			
L13	1st. FM IF	360626-1	16-3487	FM-254	1463	
L14	1st. AM IF	360611-1	16-6758	BC-352	12-C1	
L15	2nd. FM IF	360626-1	16-3487	FM-254	1463	
L16	2nd. AM IF	360625-1	16-6770	BC-355	12-C6	
L17	Ratio Det.	360627-1	17-3498	FM-255	1465	
L18	10KC Filter	360621-1				

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	MAGNAVOX PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M1	1N34A	530030-2	1N34A	1N34A	Audio Det. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
M2	Dial Light	180161-17	#1847
M3	Dial Light	180161-17	#1847
M4	Pilot Light	180161-17	Type #1847
M5	Tuning Cap.	260136-1	6 Gang (AM Sections: Ant. 25-575MMF, RF 25-195MMF, Osc. 25-575MMF)
M6	Switch	160264-1	Function (Rotary Wafer Type)

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3924 MEADE ST.
DENVER, COLORADO

RCA VICTOR
MODELS 8-STP-1, 8-STP-2

RCA VICTOR
MODELS 8-STP-1, 8-STP-2

GENERAL INFORMATION

The RCA Models 8-STP-1 and 8-STP-2 are used with Companion Speaker Units, Models SPK-2 and SPK-3. These instruments are designed especially for stereophonic sound reproduction from pre-recorded stereophonic tapes. The conventional tapes (either half-track or full-track) may also be used. Although the Stereotape Players are designed for use in conjunction with their Companion Speaker Units for stereophonic sound reproduction.

The amplifier is designed with two channels, each channel having four stages of amplification. Switching is provided in the third stage to permit full power with either stereophonic or conventional tapes.

A 30-foot cable with plug-in connectors is used to connect the Stereotype Player to its Companion Speaker Unit. Space is provided in the speaker unit for storage of the connecting cable.

CAUTION: The RCA Playback units operate on 110-125 volts, 60 cycle AC only. Connecting to any other power may permanently damage the unit.

Manufactured by:

RADIO CORPORATION OF AMERICA
RCA VICTOR RADIO "VICTROLA DIVISION"
CAMDEN, NEW JERSEY

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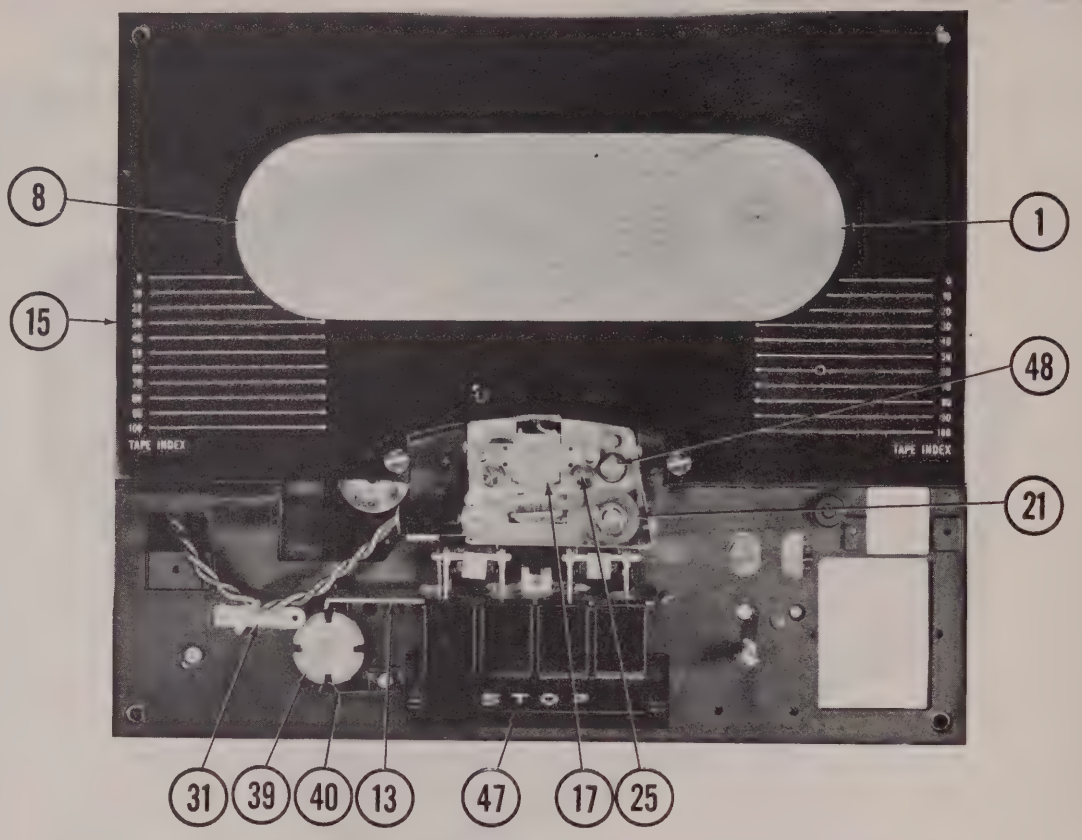

FIGURE 1

SPECIFICATIONS

Tape Speed–

7.5 "per second".

Power Output (Each Channel)–

Undistorted 3 watts maximum --- 5 watts

Speakers (3 In Each Unit)–

One 6 1/2 PM ----------3.2 ohm V.C.
Two 3 1/2 PM ----------6.8 ohm V.C.
Effective input impedance of SPK-2 and SPK-3 is 3.2 ohms.

Cabinet Dimensions–

	Height	Width	Depth
8-STP-1	9-11/16"	17-11/16"	14-3/4"
SPK-2	9-9/16"	17-11/16"	11-5/16"
8-STP-2	28"	20"	17-15/16"
SPK-3	28"	20"	17-15/16"

Weight (Net)–

8-STP-1	8-STP-2	SPK-2	SPK-3
35 lbs.	46 lbs.	10 lbs.	25 1/2 lbs.

CONTROLS

On-Off Control–

This control turns the power "On" and "Off". The knob cannot be turned while either the "Fast" (fast forward) or Fast (fast rewind) pushbutton is pushed down.

Single Pushbutton–

For listening to half-track or full track conventional tapes.

Fast (Fast Forward)–

For advancing the tape at a fast rate in order to play at some inside spot on the reel of tape.

Loudness Control

This is a dual loudness control. It adjusts the level of both channels simultaneously.

Stop–

For stopping tape motion. Always, before pressing any pushbutton, push the "Stop" bar. The "Stop" bar should also be depressed before turning the On-Off power control.

Fast (Fast-Rewind)–

For rapidly rewinding tape which has just been played.

Stereo–

For listening to stereophonic sound tapes.

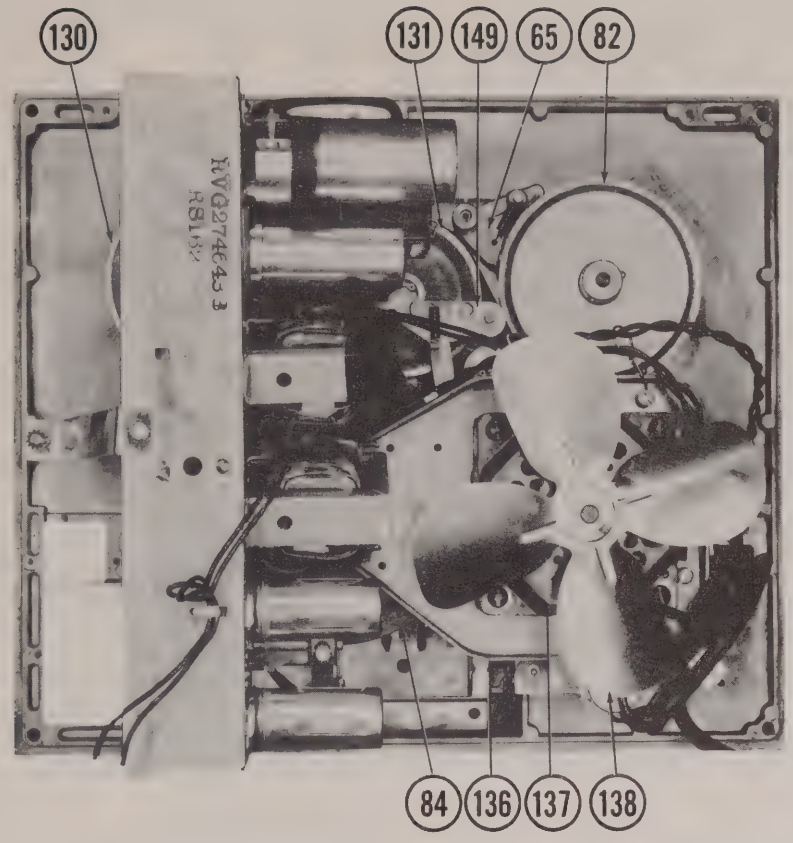

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FIGURE 2

OPERATING INSTRUCTIONS

1. Plug the AC cord into a convenient wall receptacle of the proper rating.

2. Press "Stop" bar, then turn On-Off control to "On" position.

Threading The Tape–

With the "Stop" bar depressed, place an empty reel on the right hand (takeup) spindle (1). Place a full reel of tape on the left hand supply spindle (8) so that the reel will turn counter-clockwise when tape is pulled from the reel. Make certain that the reel protrusions on the spindles engage the slots in the hub of the reels and that the reels are fully seated. Reel out about two feet of tape and feed the loose end up into the empty reel on the right spindle. Thread the tape into one of the slots in the outer surface of the hub. Hold the loose end between the fingers and slowly rotate this reel counter-clockwise through a couple of revolutions. While taking up slack in the tape between the two reels the tape will automatically drop into the tape slot.

Playing Stereo Tapes–

Push "Stereo" pushbutton down. Adjust "Loudness" control as desired. Set "Treble" control. (Treble control should not require adjustment after initial setting.) To stop tape motion at any time push "Stop" bar.

NOTE: To advance rapidly to another section of tape, push Stop bar, then "Fast" (Fast Forward) pushbutton.

Rewinding–

To rewind tape onto left-hand reel push "Stop" bar, then push "Fast" (Fast Rewind) pushbutton. When tape has rewound onto left-hand reel, stop spindle rotation by pushing "Stop" bar.

Playing Conventional Tapes–

1. To play conventional single-track or half-track recordings use "Single" pushbutton instead of "Stereo" pushbutton to start tape motion.

2. When playing conventional half-track tapes, reversal of the tape reels, as follows is necessary to complete playback of both tracks:

After playing a full reel so that all the tape has moved from feed reel onto takeup reel, do not rewind. Instead, just lift feed reel and takeup reel off their spindle and reverse their positions. Thread the tape again in the usual way and continue playing.

Tape Index–

The numerals and horizontal lines painted on the baseplate are convenient playing time indicators. They serve as a ready reference to any desired portion of the recorded tape. Permanent records of this may be kept on the tape box enabling you to locate your favorite selections.

FUNCTION OF TAPE TRANSPORT CONTROLS

On-Off Power Switch–

Power is applied to motor and amplifier by turning left-hand control knob to "On". An interlock bar

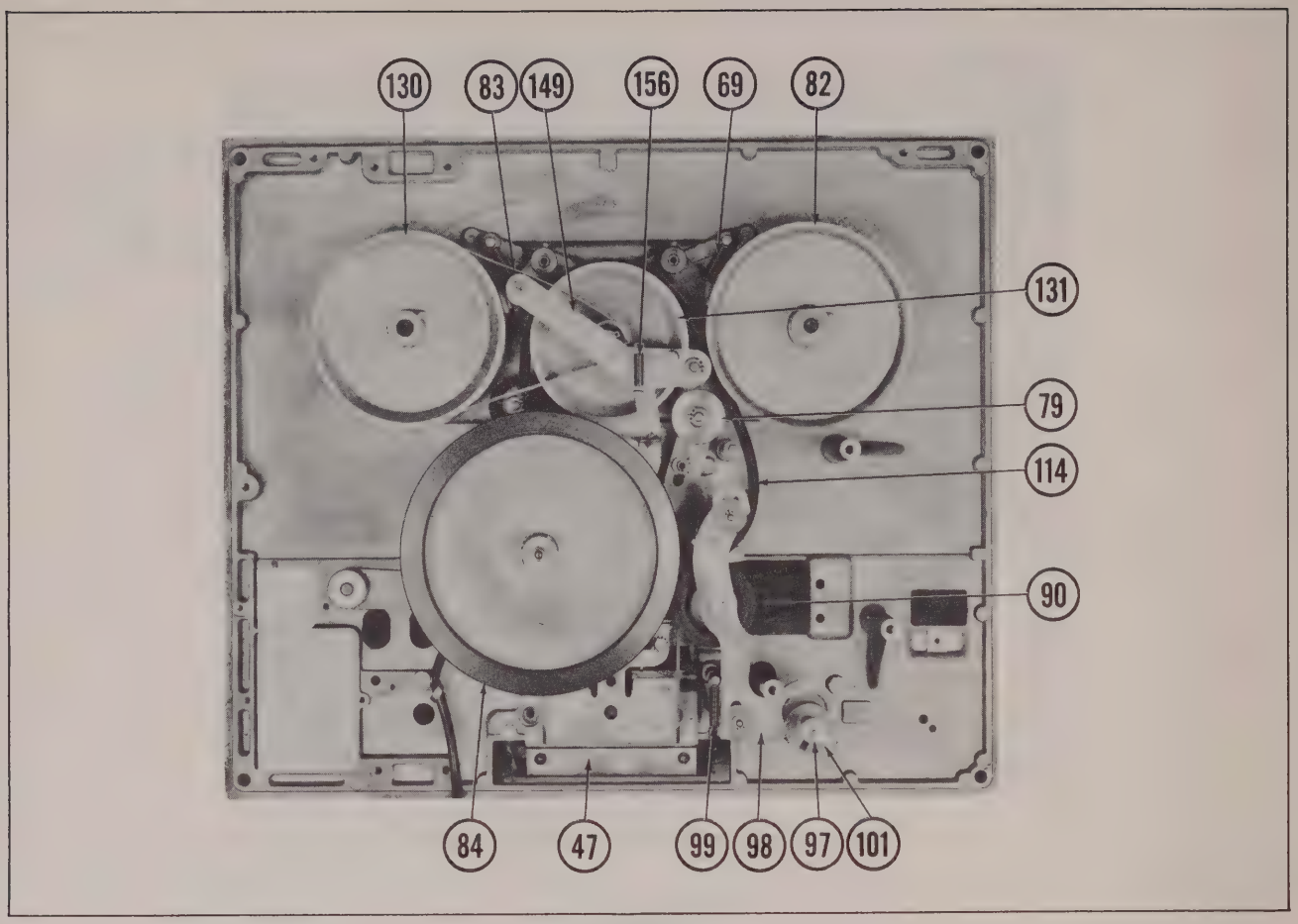

FIGURE 3

(13) prevents the knob from being turned when either of the two "Fast" pushbuttons are in the depressed position.

Turning the left-hand control knob causes eccentric cams (101) mounted on the control shaft (97) to move idler drive wheel (90) into contact with flywheel (84) and stepped motor pulley (115).

Stereo–

Depressing the "Stereo" pushbutton (43), releases the brakes and forces the pressure roller (21) against the capstan (48).

Fast Forward–

When the "Fast" (fast forward) pushbutton (45) is depressed, the pushbutton cam pushes the fast forward drive idler slide (72) to the rear, forcing the idler roller (78) into contact with both the main drive pulley (125) and the takeup drive pulley (82). This drives the takeup drive pulley at a high rate of speed.

Rewind–

When the "Fast" (fast rewind) pushbutton (44) is depressed, the pushbutton cam pushes the rewind drive idler slide (113) to the rear, forcing the idler roller (119) against main drive belt (114). The drive belt is moved into contact with the rewind drive pulley (130), thus driving it at a high rate of speed.

Pressure Roller And Pressure Pad–

When "Stereo" or "Single" pushbutton is depressed, a cam on the pushbutton indirectly forces pressure roller arm (57) to the rear; pressure roller (21) will then press tape firmly against the capstan (48). At the same time, the pressure pad (52) will press the tape lightly against the head (17).

"Single" Pushbutton–

When the "Single" pushbutton (46) is depressed it releases the brakes and forces the pressure roller (31) to contact the capstan (48). At the same time, a cam on the "Single" pushbutton pushes down on a push-rod. The push rod, in contact with a switch lever, turns the "Stereo-Single" switch (M-10) to the "Single" position. When the Single pushbutton is unlatched, the switch is returned by spring tension to the "Stereo" position.

Stop Bar–

Depressing the "Stop" bar (47) at any time unlatches any pushbutton already in the depressed position. The unlatching action allows the brake release slide (64) to be pushed forward by the spring attached to the two brake arms (65 and 66), and allows the brake pads to contact both the takeup drive pulley (82) and the rewind drive pulley (130).

Brake Release–

Depressing any pushbutton releases the brakes; depressing either "Fast" pushbuttons (44 or 45) will directly move brake release slide (64) against the tension of brake arm springs (69 and 110). This will move the brakes (65 and 66) away from takeup drive

pulley (82) and rewind drive pulley (130). Depressing either Play pushbuttons (43 or 46) will move pressure roller arm actuating slide (70) which will in turn move brake release slide to the rear.

Takeup Drive–

Main drive pulley (125) is belt-driven from motor pulley (115) at a constant speed independent of flywheel (84) speed. Takeup drive pulley (82) is driven from small-diameter section of dual drive pulley (125) by means of a flat belt (83). This belt is designed to slip on the dual drive pulley to provide a constant forward tension on the tape with any amount of tape on the right hand reel. A spring-loaded idler roller is used to provide tension on the takeup belt.

ADJUSTMENTS

Playback Head Adjustment–

It is very important that the playback head (17) be lined up perfectly with the tape. If it is not, low output, loss of high frequencies or track overlap may result.

1. Thread a standard frequency tape on the tape transport.

2. Playing the 1000 cycle part of tape, adjust right hand tape guide (25) for maximum output; adjust left hand tape guide so that tape is approximately level across front of head.

3. While playing the 12, 000 cycle section of tape: Adjust head mounting screws (16) for the angular position of head which will give maximum output. Head should be as far forward as possible and mounting screws must be tight.

Gain Control–

An adjustable gain control is used to enable the gain of the two channels to be equalized.

Set gain control as follows:

1. Thread standard frequency tape on the tape transport.

2. Connect an output meter across the terminals of the 6 1/ 2" speaker contained in the tape transport mechanism.

3. Turn Stereotape Player "On" and allow it to warm up for several minutes. Set volume control at normal playing position.

4. Depress the "Stereo" pushbutton and while playing the 1000 cycle portion of the tape, note the output meter reading.

5. Depress the "Stop" bar and reverse tape reels to turn tape upside down.

6. Disconnect the output meter from the Stereotape Player and connect to the 6 1/ 2" speaker of the Companion Speaker Unit.

7. Repeat Step #4.

8. Adjust (R3A) (gain control) to obtain the same indication on the output meter as was noted in Step #4.

Brake Pad Adjustment–

Both brake pads (65 and 66) should engage their respective drums with equal force and at the same instant. The brake pads should engage the drums (82 and 132). With the most pad area – brake arm must not be bent at an angle to equalize timing. Unequal brake pad wear will be due to a rough brake drum.

Brake equalization is accomplished by bending the ends of the brake arm actuating lever (64). For access to ends of actuating lever, remove drive pulley (125).

Pressure Roller Adjustment–

The pressure roller (21) holds the tape tight against the capstan (48) during play. The force is mainly derived from the formed spring (59) on the pressure roller arm (57). One mounting hole of the spring is slotted to permit adjustment. The proper spring tension is determined by measuring the force necessary to pull tape past the capstan (48). With mechanism stopped and either Play pushbuttons depressed, it should require a tension of 32 ounces to cause tape slippage. Excessive pressure will make it difficult to latch either of the Play pushbuttons.

TROUBLES

Pushbutton Fails To Latch Into Position–

Stop bar compression spring (142) broken or missing, resulting in latch plate of stop bar assembly (47) not being held against cam of pushbutton.

No Drive On Takeup Reel–

1. Takeup drive belt (83) broken or loose.

2. Bind in bearing of takeup hub (1).

3. Tape improperly threaded.

4. Bind in bearing of takeup arm (149) or take arm roller (147).

5. Takeup arm tension spring (156) missing or unhooked.

No Fast Forward Or Rewind–

1. Fast Forward drive idler (78) or rewind idler (119) missing.

2. Broken or missing pressure spring on rewind slide (113) or fast forward slide (72).

Breaking Of Tape–

Frequent breaking of tape may be caused by improper adjustment of brakes or failure to depress stop bar before changing pushbutton function (See Brake Pad Adjustment).

Speed Variation Or "Wow"–

1. Check capstan (48) pressure roller (21) idler wheel (90) main drive pulley (125) and main drive belt (114) for presence of oil or foreign material. Clean contacts surfaces with cleaning fluid.

2. Check setscrew in motor pulley (115) and flywheel (84) for tightness.

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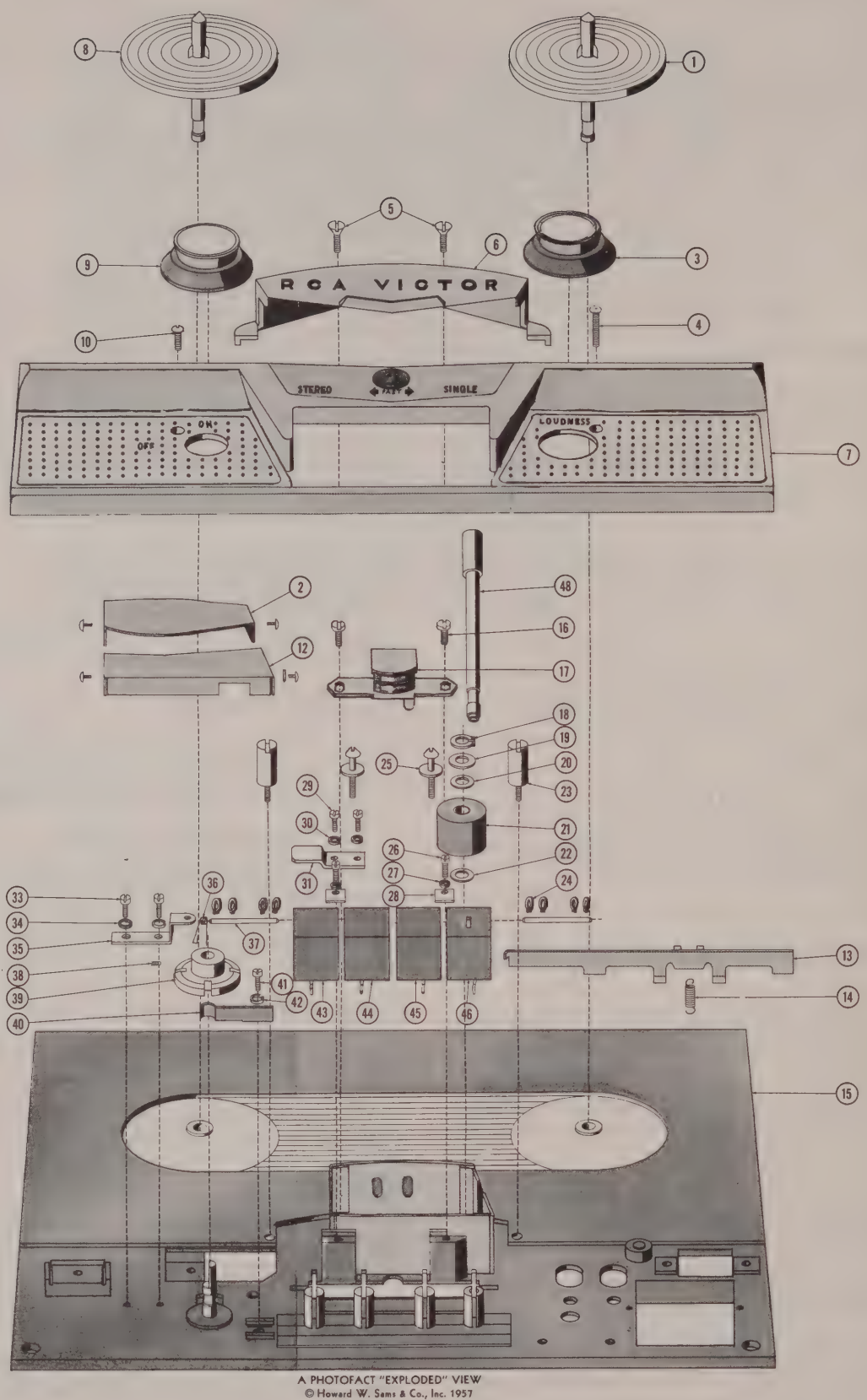


FIGURE 4A. EXPLODED VIEW OF PARTS ABOVE BASEPLATE.

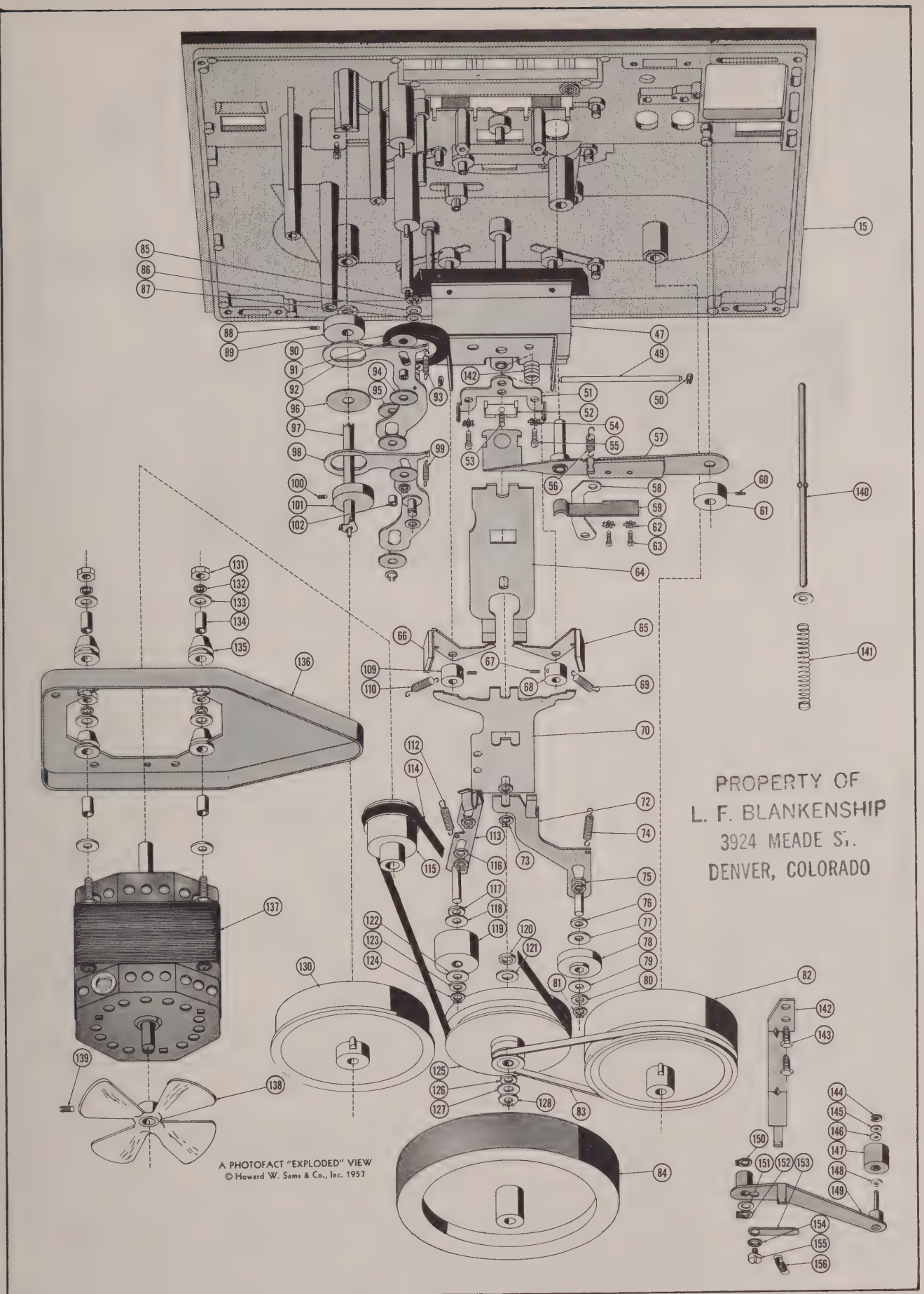


FIGURE 4B. EXPLODED VIEW OF PARTS BELOW BASEPLATE.

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Left Ch. Preamplifier	12AX7	
V2	Right Ch. Preamplifier	12AX7	
V3A	Right AF Amplifier	12AX7	
V3B	Left AF Amplifier	12AX7	

ITEM No.	USE	TYPE	NOTES
V4	Right Ch. Output	6AQ5	
V5	Left Ch. Output	6AQ5	
V6	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA VICTOR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲80	400	103259	AFH4-57-50				Q-017	R2438 *
B	■50	400						MTD-1520	
C	▲25	25							
D		25							
C2	1000	15	103257	AFH1-02	A0060	WP039	TMS-4	S-020	TVL-1165
C3A	30	250	103298	PRS250V-3030	BBRD3325	FP227.3	TDLD-20	MTD-4530	TVA-2735
B	30	250							
C4	8	10VAC	100509	PRS10VAC8	BBR16-90 † BBR16-90	TC108	TD-16-150† TD-16-150	MT-1516 † MT-1516	
C5	8	10VAC	100509	PRS10VAC8	BBR16-90 † BBR16-90	TC108	TD-16-150† TD-16-150	MT-1516 † MT-1516	R2201 * R2201 *

† Connect - to -.
* Non-Catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

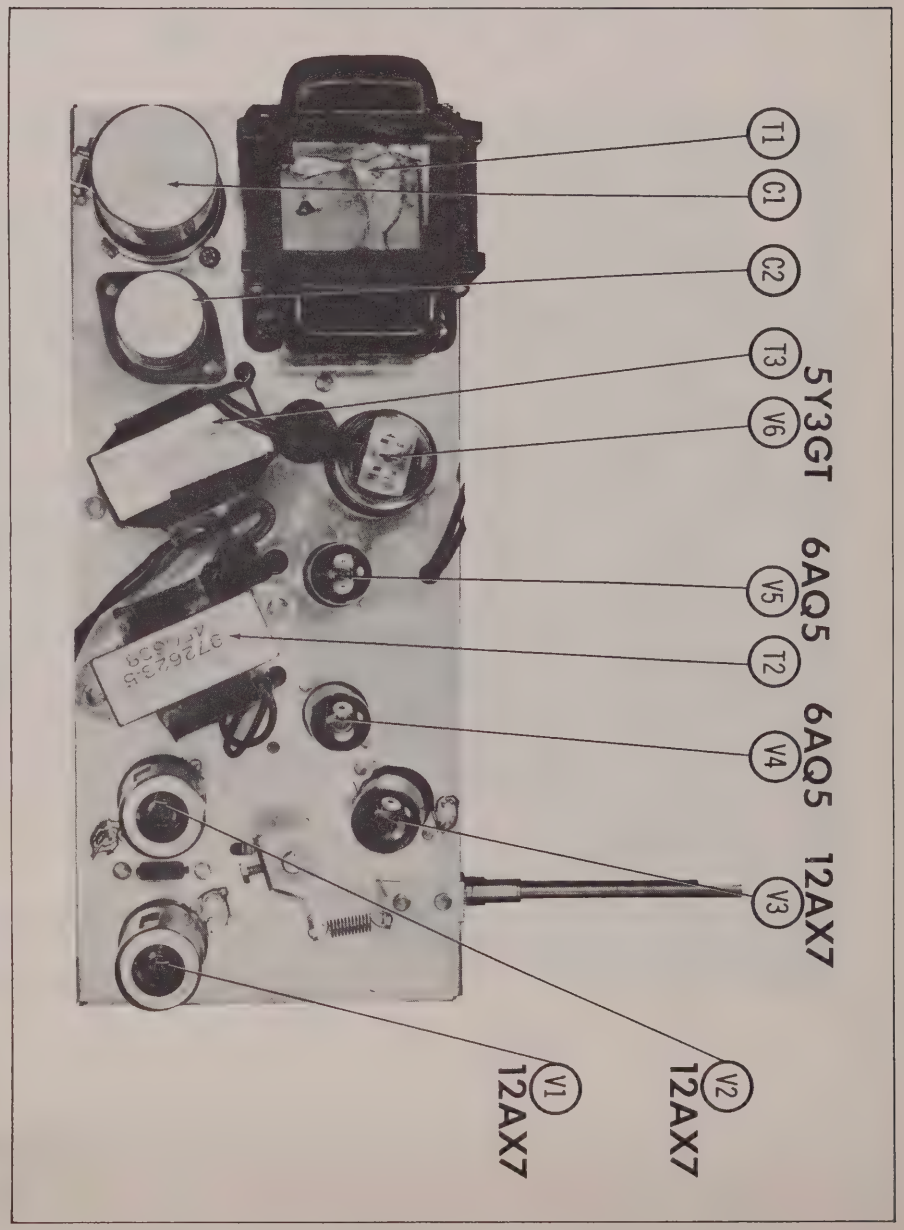
ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA VICTOR PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	.1	200	79251					GEM-201		10%
C7	120		78142	NPO-S1120	D6-121	L10T12	ED-120		5TCC-T12	10%
C8	.033	400	73552							10%
C9	.1	400	78922					GEM-401		10%
C10	.01	400	73561	1464-01				GEM-1611	MS-11	10%
C11	.0047	400	73920	1464-0047		1R5D47		GEM-16247	MS-247	10%
C12	.047	200	78921A							10%
C13	120		78142	NPO-S1120	D6-121	L10T12	ED-120		5TCC-T12	10%
C14	.1	200	79251					GEM-201		10%
C15	.033	400	73552							10%
C16	.1	400	78922					GEM-401		10%
C17	.01	400	73561	1464-01				GEM-1611	MS-11	10%
C18	.0047	400	73920	1464-0047		1R5D47		GEM-16247	MS-247	10%
C19	.047	200	78921A							10%
C20	.01	200	73561	1464-01		1DR3S1		GEM-1611	MS-11	10%
C21	.01	200	73561	1464-01		1DR3S1		GEM-1611	MS-11	10%
C22	.0022	600	73595	1464-0022					MS-222	10%
C23	.047	400	73553							10%
C24	.0022	600	73595	1464-0022					MS-222	10%
C25	.047	400	73553							10%

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	RCA VICTOR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1.5Meg	½	103262					Loudness Tap @ 250K & 500K
B	1.5Meg	½						Loudness Tap @ 250K & 500K
R2A	250K	½	103263	BB-103	AD47-250K-Z	Q13-130	UF254A	Tone
B	250K	½				M13-130	UR254A	Tone
C	Shaft				FS-3		DS-36 ①	Note ①
R3A	1Meg	½	103260	BX-69	A47-1Meg-S	B11-137	TA16L	Gain
B	Shaft			Not Req.	FKS-1/4	TM1-Kit	Not Req.	

Note #1. Special Shaft.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA VICTOR PART No.	IRC PART No.	
R4	27K		502327	BTS-27K	
R5	10Meg		502610	BTS-10Meg	
R6	22K		502322	BTS-22K	
R7	220K		502422	BTS-220K	
R8	2700Ω		502227	BTS-2700	
R9	10Meg		502610	BTS-10Meg	
R10	27K		502327	BTS-27K	
R11	100K		502410	BTS-100K	
R12	100K		502410	BTS-100K	
R13	390K		502439	BTS-390K	
R14	47K		502347	BTS-47K	
R15	12K		502312	BTS-12K	
R16	27K		502327	BTS-27K	
R17	10Meg		502610	BTS-10Meg	
R18	220K		502422	BTS-220K	
R19	2700Ω		502227	BTS-2700	
R20	27K		502327	BTS-27K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA VICTOR PART No.	IRC PART No.	
R21	10Meg		502610	BTS-10Meg	
R22	220K		502422	BTS-220K	
R23	47K		502347	BTS-47K	
R24	12K		502312	BTS-12K	
R25	390K		502439	BTS-390K	
R26	220K		502422	BTS-220K	
R27	3300Ω		502233	BTS-3300	
R28	220K		502422	BTS-220K	
R29	3300Ω		502233	BTS-3300	
R30	470K		502447	BTS-470K	
R31	330Ω	1	512133	BTA-330	
R32	3.3Ω 5%	2	103289		
R33	470K		502447	BTS-470K	
R34	10K		502310	BTS-10K	
R35	330Ω	1	512133	BTA-330	
R36	470Ω	4	103284		
R37	15Ω 5%	4	103285		

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	RCA VICTOR PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ⓐ .6A	560VCT ⓐ .080A	5V ⓐ 2A	18V ⓐ .3A SEC. 4 6.3VCT ⓐ 1.38A	103261					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	RCA VICTOR PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5500Ω	3-4Ω	101718 ①	A-3019	A-3019	A-3823	26S49	S-5Z	① Right Channel.
T3	5500Ω	3-4Ω	101718 ②	A-3019	A-3019	A-3823	26S49	S-5Z	② Left Channel.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	RCA VICTOR PART No.	QUAM PART No.	
SP1	3 1/2"	PM	6-8Ω	100465 ①	3A15TZ6.6	① Right Side Speaker
SP2	3 1/2"	PM	6-8Ω	100465 ①	3A15TZ6.6	② Left Side Speaker
SP3	6 1/2"	PM	3-4Ω	100464 ①	6A21	
SP4	3 1/2"	PM	6-8Ω	100465 ②	3A15TZ6.6	
SP5	3 1/2"	PM	6-8Ω	100465 ②	3A15TZ6.6	
SP6	6 1/2"	PM	3-4Ω	100464 ②	6A21	

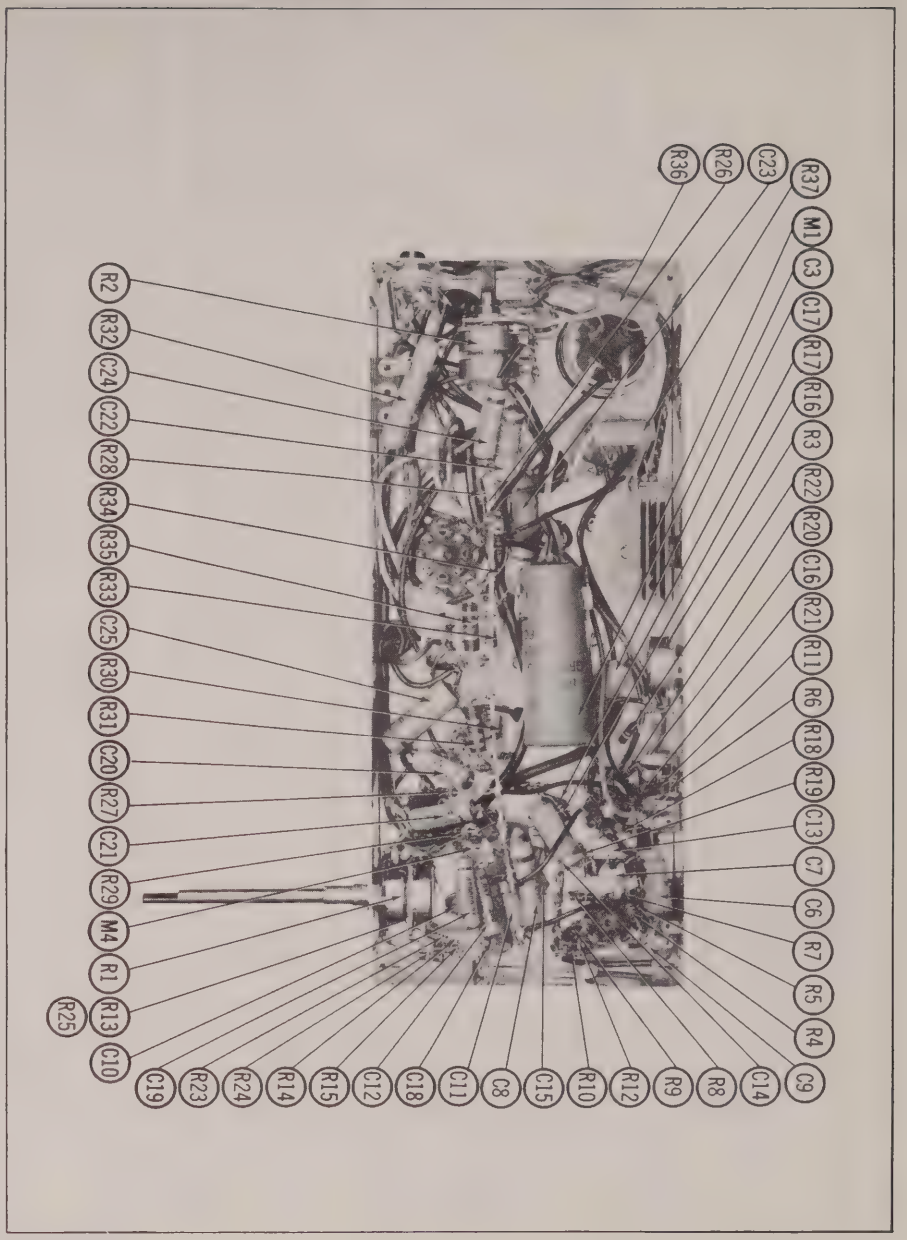
SELENIUM RECTIFIER

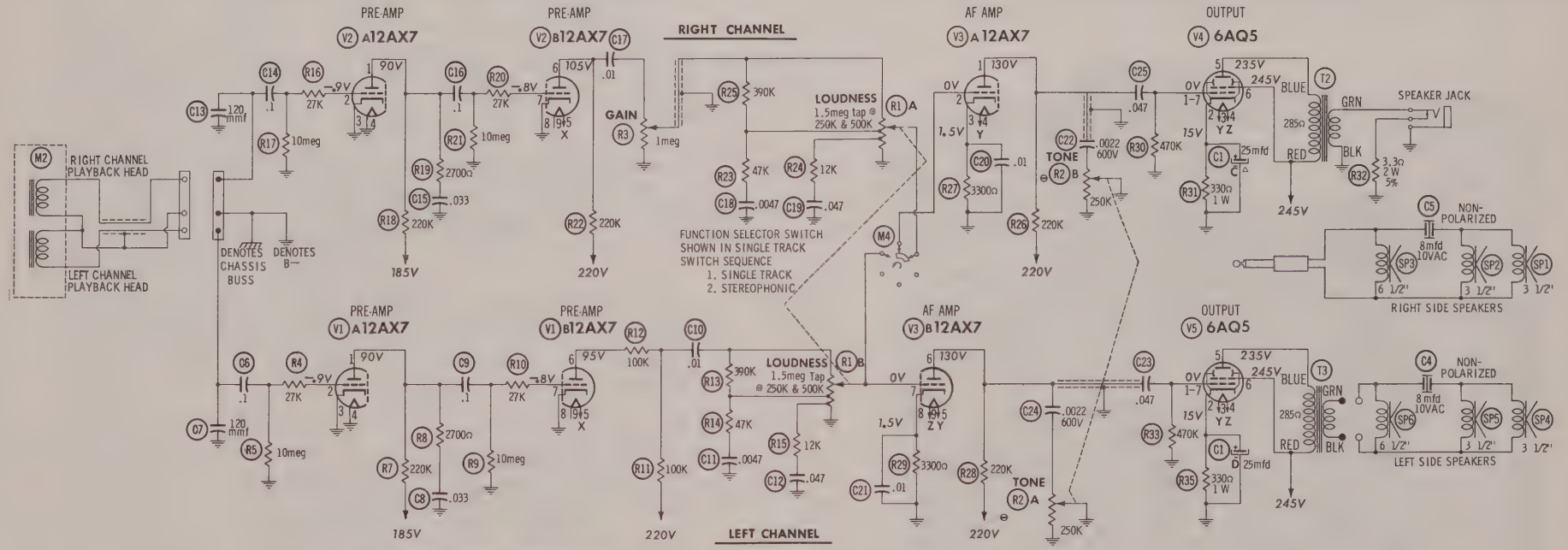
ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	RCA VICTOR PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	
M1	.300A	103258	1017	C1B	B26G	604B	

MISCELLANEOUS

ITEM No.	PART NAME	RCA VICTOR PART No.	NOTES
M2	Head	103277	Dual Track Playback
M3	Pilot Light	11891	#44
M4	Switch	103264	Function ("Stereo"/ "Single")
M5	Motor	103375	

CHASSIS—BOTTOM VIEW



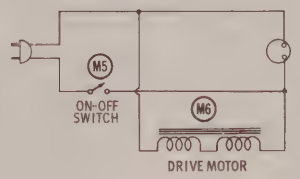


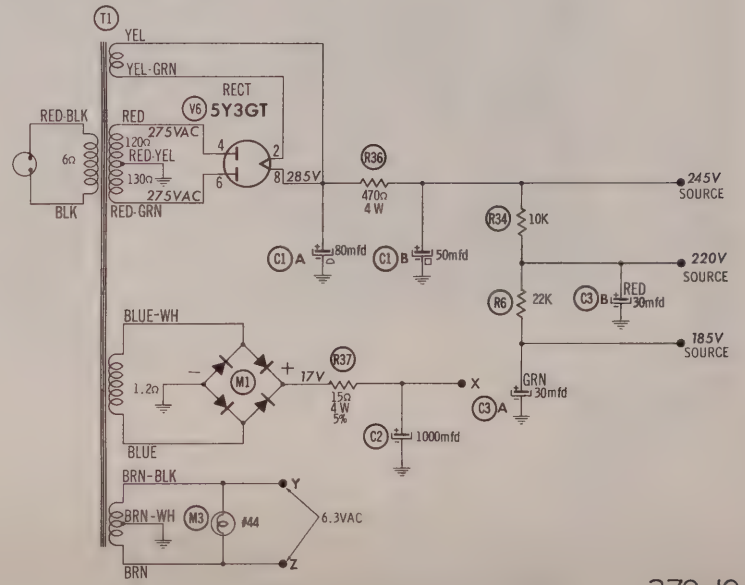
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	† 250K	10Meg	0Ω	0Ω	6Ω	† 210K	10Meg	0Ω	NC
V2	12AX7	† 250K	10Meg	0Ω	0Ω	6Ω	† 230K	10Meg	0Ω	NC
V3	12AX7	† 230K	0Ω	3300Ω	.1Ω	.1Ω	† 230K	0Ω	3300Ω	.1Ω
V4	6AQ5	470K	330Ω	.1Ω	.1Ω	† 750Ω	† 470Ω	470K		
V5	6AQ5	470K	330Ω	.1Ω	.1Ω	† 750Ω	† 470Ω	470K		
V6	5Y3GT	NC	20K MIN	NC	120Ω	NC	130Ω	NC	20K MIN	

† MEASURED FROM PIN 8 OF V6.
• 6.3VAC MEASURED ACROSS FILAMENTS.
NC NO CONNECTION.





A PHOTOFACT STANDARD NOTATION SCHEMATIC
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3. Check pressure roller arm tension spring (59). Pressure roller must have sufficient force on capstan (48) to require 32 ounces tension on tape before slippage occurs when either Play pushbutton is pushed.

4. Check slides (92 and 98) for freedom of movement and slide tension springs (93 and 99) for tension.

Tape Overruns Or Spills When Stop Bar Is Depressed During Rewind Or Fast Forward–

1. Brake not adjusted properly. (See Brake Pad Adjustment).

2. Brake pads worn out.

3. Unequal tension of brake spring (69 and 110).

Mechanical Noise When Idler–

Takeup belt tension roller (147) touches takeup drive pulley (82). Adjust position of takeup arm stop (153) to provide clearance.

No Sound From Any Speaker–

1. Pressure pad (52) fails to hold tape against head (17) due to misplaced spring (53).

2. Right-hand tape guide (25) improperly positioned.

3. Tape improperly threaded. Dull side of tape must face inward on reel and against head.

4. Open circuit in head or connecting cable.

5. Defect in amplifier.

6. Single-stereo switch actuating lever improperly positioned on switch shaft. Switch must be fully actuated in both directions.

How To Splice Tape–

1. Although plastic tape is quite durable, it can be broken or torn. This is relatively simple to correct.

(a) Cut tape at 60^{o} angle with an overlap so ends will line up. (Cutting tape at 60^{o} angle will eliminate delection of splice on recording.

(b) Align both ends of tape, with glossy side up.

(c) Cover aligned ends with splicing tape, evenly and securely.

(d) Trim off excess splicing tape (cut into the recording tape very slightly.) This eliminates possibility of a sticky splice.

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	101469	Shaft-Right Hand Reel Hub And Shaft Assembly
2	103279	Cover - Head Cover - Top Rear
3		Loudness Knob
4		Screw - #6 x 3/4"
5		Screw - #8 x 1/2"
6	101525	Escutcheon - Playback Head Plastic Escutcheon
7	103254	Escutcheon - Front Control Panel Escutcheon - Less R.H. & L.H. Covers
8	101471	Shaft-Left Hand Reel Hub & Shaft Assembly
9		On-Off Knob
10		Screw - #6-32 x 3/8"
11	101474	Shaft - Capstan Shaft
12	103278	Cover - Head Cover - Top Front
13	101483	Interlock - Fast Forward Or Rewind Interlock Bar
14	101514	Spring - Interlock Bar Tension Spring
15	103287	Motorboard - Motorboard Sub Assembly For Model TR2-6 Tape Transport Mechanism
16		Screw - #6-32 x 1/4"
17	103277	Head - Dual Track Playback Head
18	103157	"C" Retainer
19	101507	Washer
20	101523	Cambric Washer
21	101475	Roller - Tape Pressure Roller
22	101523	Cambric Washer
23	101956	Post - Tape Guide Post - Fixed (2 Required)
24	101517	Ring - Grip Ring
25	101493	Post - Tape Guide Post - Adjustable (2 Required)
26		Screw - #6-32 x 1/4"
27		Washer #6 Split Washer
28	101487	Retainer - Pushbutton Assembly
29		Screw #6-32 x 1/4"
30		#6 Washer
31		Bracket - Pilot Lamp Mounting Bracket
33		Screw - #6-32 x 1/4"
34		#6 Washer
35		Bracket - Front Escutcheon Mounting Bracket
36	101744	Spring - Pushbutton - Return Spring
37	101486	Pushbutton Pivot Shaft
38	14974	Screw - #8-32 x 3/16" Set Screw
39	101481	Collar - Interlock Detent Collar
40	101454	Spring - Interlock Detent Spring
41		Screw - #6-32 x 3/16"
42		#6 Washer
43	101464	Button - "Stereo"
44	101465	Button - "Rewind"
45	101466	Button - "Fast Forward"
46	103280	Button - "Single"
47	101477	Latch-Pushbutton Release Latch & Bar Assembly
48	101474	Shaft - Capstan Shaft
49	101516	Shaft - Pushbutton Pivot Shaft
50	101517	Ring - Grip Ring
51	101452	Bracket - Pushbutton Latch Mounting Bracket
52	101490	Spring - Pressure Pad Assembly
53	101479	Spring - Pressure Pad Coil Spring
54		#6 Washer
55		Screw - #6-32 x 1/4"
56	71099	Spring - Pressure Roller Arm Return Spring

MECHANICAL PARTS LIST (CON'T.)

Ref. No.	Part No.	Description
57	103156	Arm - Pressure Roller Arm
58	101957	Support - Pressure Roller Arm Support Plate
59	101450	Spring - Pressure Roller Arm
60	101592	Screw - #8-32 x 1/4"
61	101448	Collar - Pressure Roller Arm Collar
62		#6 Washer
63		#6-32 x 3/16" Screw
64	101446A	Slide - Brake Release Slide
65	101498	Brake - Right Hand Brake Arm
66	103670	Brake - Left Hand Brake Arm
67	101592	Screw - #8-32 x 1/4"
68	101767	Collar - Brake Arm Retaining Collar
69	101511	Spring - Brake Arm Spring
70	101451A	Slide Pressure Roller Arm Actuating Slide
72	101447	Slide - Fast Forward Actuating Slide Assembly
73	101500	Ring - Grip Ring
74	71099	Spring - Fast Forward Spring
75	101500	Ring - Grip Ring
76	101503	Rubber Washer
77	101502	Washer - Phenolic Washer 1/2"
78	101463	Roller - Fast Forward Drive Roller
79	101502	Washer - Phenolic Washer
80	101503	Rubber Washer
81	101500	Ring - Grip Ring
82	103271	Pulley - Takeup Drive Pulley
83	103283	Belt - Takeup Drive Belt (Flat Fabric)
84	101476	Wheel - Capstan Drive Flywheel
85	101508	Washer - "C"
86	78719	Washer - Flat
87	74078	Washer - Cambric
88	101505	Screw - #6 x 32 x 1/4"
89	101455A	Eccentric - Main Drive Idler Eccentric
90	101492	Wheel - Main Drive Idler Wheel
91	101521	Washer - Phenolic Washer
92	101520A	Arm - Main Drive Idler Arm
93	101512	Spring - Main Drive Idler Arm Spring
94	101521	Washer - Phenolic Washer
95	101521	Washer - Phenolic Washer
96	101522	Washer - Phenolic Washer
97	101453	Shaft - Drive Idler Actuating Shaft And Switch Assembly
98	103270	Arm - Speed Change Arm
99	101512	Spring - Main Drive Idler Arm Spring
100	101505	Screw - Set Screw
101	101455A	Eccentric - Main Drive Idler Eccentric
102	102354	Bushing - Nylon Bushing
109	101767	Collar - Brake Arm Retaining Collar
110	101511	Spring - Brake Arm Spring
112	71099	Spring - Rewind Slide Return Spring
113	101456	Slide - Rewind Drive Idler Actuating Slide
114	101458	Belt - Main Drive Belt (Rubber)
115	101473	Pulley - Motor Drive Pulley
116	101500	Ring - Grip Ring
117	101503	Washer - Rubber Washer
118	101502	Washer - Phenolic Washer
119	101467	Roller - Rewind Drive Roller
120	101504	Washer - Rubber Washer
121	101591	Washer - Phenolic Washer
122	101502	Washer - Phenolic Washer
123	101503	Washer - Rubber Washer
124	101500	Ring - Grip Ring
125	103282	Pulley - Main Drive Dual Pulley Assembly
126	101591	Washer - Phenolic Washer
127	101504	Washer - Rubber Washer
128	101501	Ring - Grip Ring
129	101592	Screw - Set Screw
130	101468	Pulley - Rewind Drive Pulley
131		Nut - #10-32 Hex Nut
132		Washer - #10 Split Lockwasher
133		Washer - Flat Metal Washer 1/2" O.D.
134	101510	Spacer - Motor Mounting Spacer
135	101509	Grommet - Rubber Motor Mounting Grommet
136	101459	Plate - Motor Mounting Plate
137	103375	Motor - Drive Motor - 115 Volts, 60 Cy.
138	103249	Fan - 6" Fan Blade
139	101589	Screw - #10-32 x 1/4" Cup Point Set Screw
140	101708	Shaft - "Stereo-Single" Actuating Shaft
141	101860	Spring - Stereo-Single" Actuating Compression Spring
142	103346	Bracket - Take-Up Spring Mounting Bracket
143		Screw - #6 x 1/4" Hex Hd. Screw
144	101517	Ring - Grip Ring
145	100196	Washer - Flat Metal Washer
146	100198	Washer - Cambric Washer
147	103275	Roller - Takeup Roller
148	100198	Washer - Cambric Washer
149	103276	Arm - Takeup Arm Assembly
150	101500	Ring - Grip Ring
151	100197	Washer - Flat Metal Washer
152	101500	Ring - Grip Ring
153		Stop (Part Of Takeup Arm Assembly (149)
154		Washer (Part Of Takeup Arm Assembly (149)
155		Screw
156	101267	Spring - Takeup Arm Tension Spring

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

H. H. SCOTT
MODEL 99-C

TRADE NAME	H. H. Scott Model 99-C	
MANUFACTURER	Hermon Hosmer Scott, Inc., 385 Putnam Ave., Cambridge 39, Mass.	
TYPE SET	AC Operated 7 Channel Preamp.-Amplifier	
TUBES (Six)	Types 12AX7 Phono Preamp.-AF Amp., 12AX7 AF Amplifier, 12AX7 AF Amplifier - Phase Inv., (2) 6L6GB Output., 5U4GA Rectifier	
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING 1.04 Amp. @ 117 Volts AC (110 Watts)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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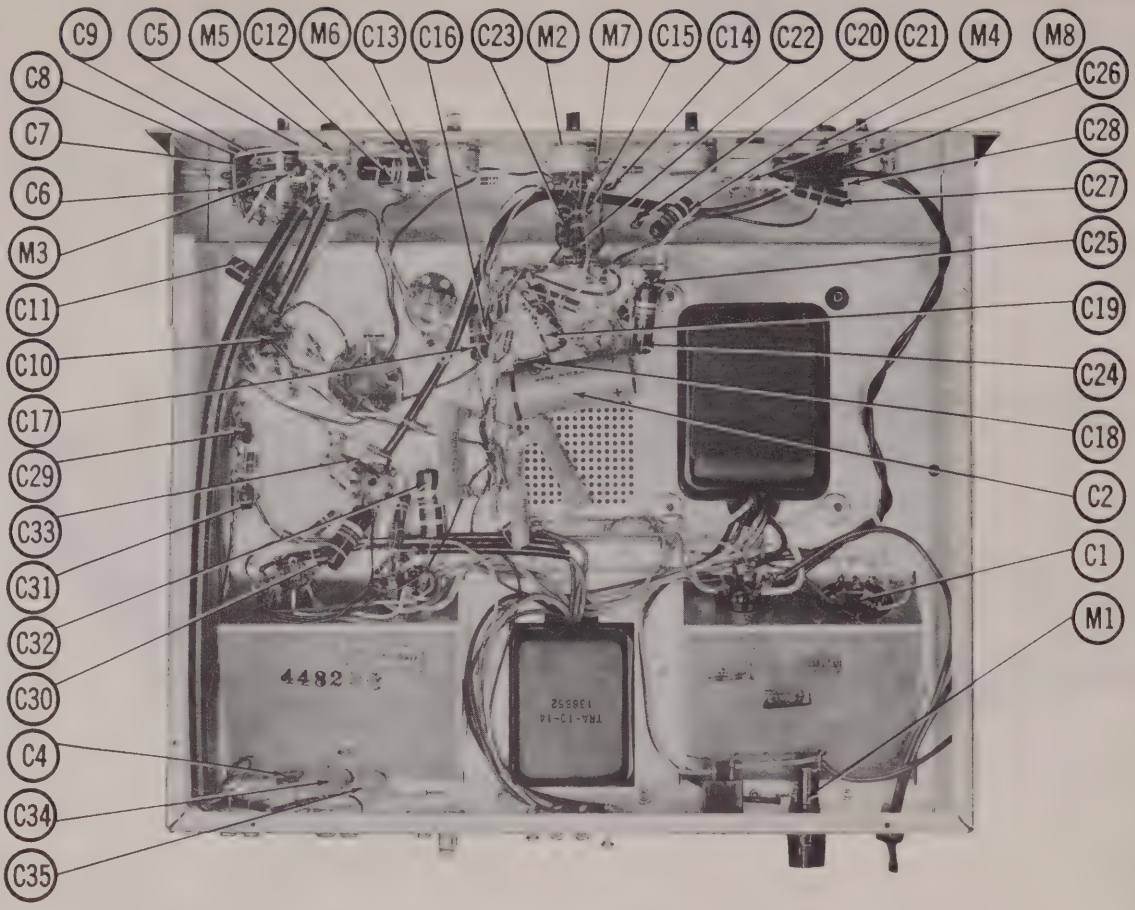
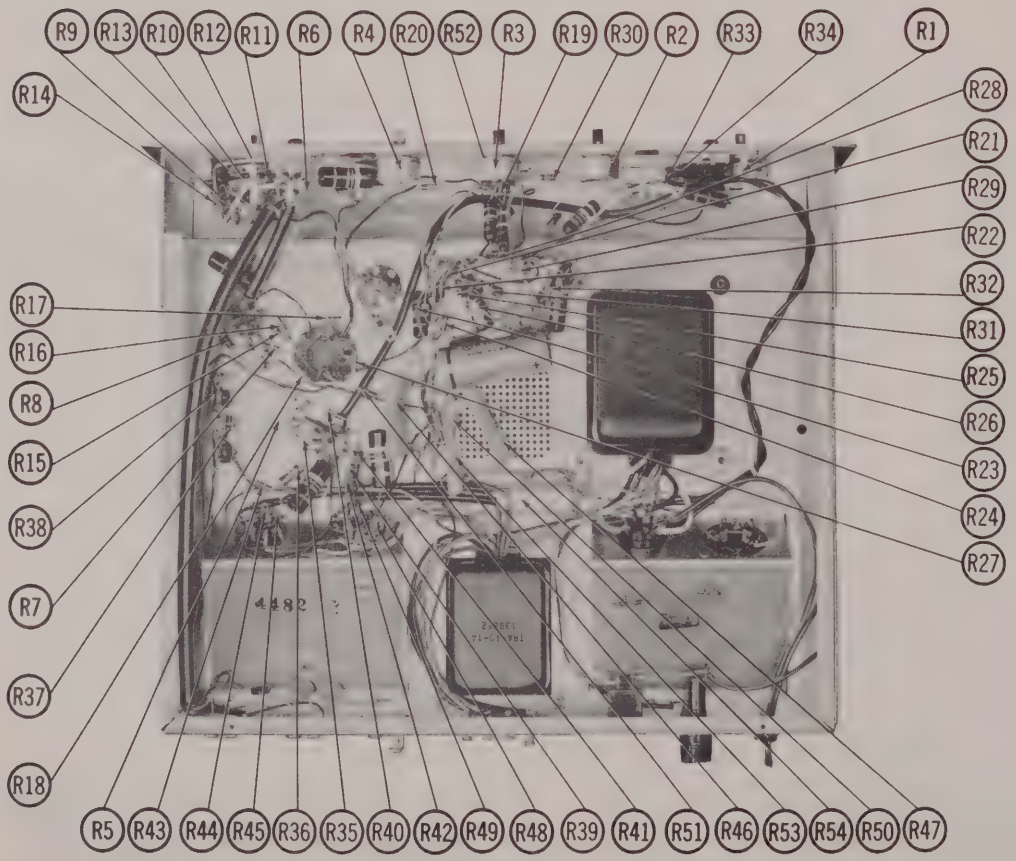


CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Phono Preamplifier AF Amp.	12AX7	
V2	AF Amplifier	12AX7	
V3	AF Amp. -Phase Inv.	12AX7	
V4	Output	6L6GB	
V5	Output	6L6GB	
V6	Rectifier	5U4GA	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA							
	CAP.	VOLT.	H. H. SCOTT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲20	475		AFH4-19-20	DO179₀5	FP475		T-205	TVL-4834
B	■20	475						MT-4720	
C	▲20	475							
D	20	475							
C2	50	100		PRS150V50	BR5015	TC49	TD-50-150	MT-1550	TVA-1414
C3A	▲10	450		AFH4-63	DO880	FP376₀6	TMQ-72	Q-295	R2439 *
B	■10	450				TC26			
C	25	25							
D	▲25	25							

* Non-Catalog Item.

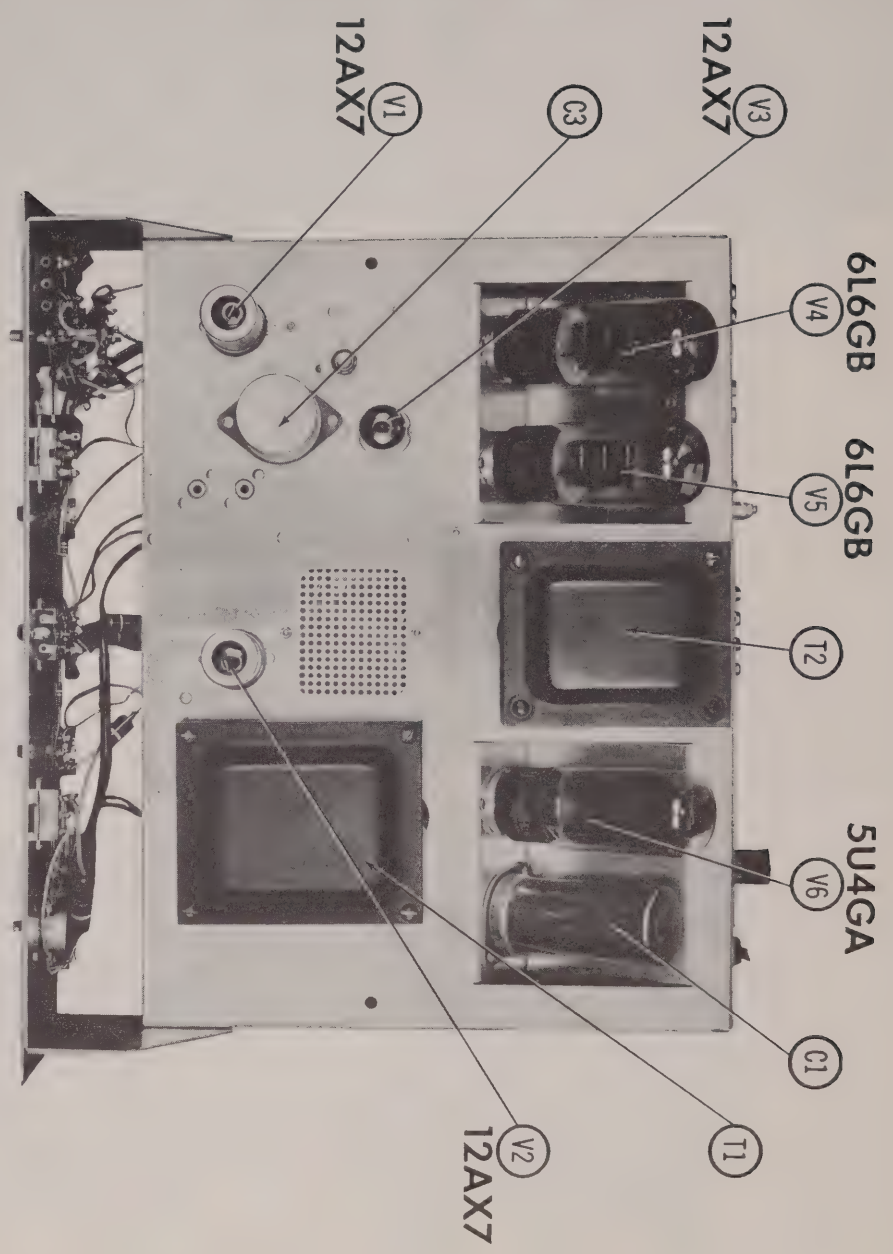
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA								NOTES
	CAP.	VOLT	H. H. SCOTT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	100			1468-0001	DD-101	5W5T1	ED-100	UC-531	5GA-T1	
C5	₀0012	400		SI1200	D6-122	LT6D12	GP-1200	UC-5212	5GA-D12	
C6	220			1468-00022	DD-221	5W5T22	ED-220	UC-5322	5GA-T22	
C7	270			1467-00027	DD-271	5W5T27	ED-270	UC-5327	5GA-T27	
C8	330			1467-00033	DD-331	5W5T33	ED-330	UC-5333	5GA-T33	
C9	680			1467-00068	DD-681	1W5T68	ED-680	UC-5368	5GA-T68	
C10	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C11	₀022	400		BPD-02	DF-203	CUB4S22	ED-02	GEM-6122	4TM-S22	
C12	₀047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C13	₀0047	400		BPD-0047	DD-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C14	22			1468-000022	DD-220	5W5Q22	ED-22	UC-5422	5GA-Q22	
C15	470			1468-00047	DD-471	5W5T47	ED-470	UC-5347	5GA-T47	
C16	4₀7			NPO-SI4₀7	TCZ-4R7	C10V47C	TCO-4₀7	ZT-5547	5GCB-V47	
C17	₀001	400		BPD-001	DD-102	CUB6D1	ED-1000	GEM-421	6TM-D1	
C18	680			1468-00068	DD-681	1W5T68	ED-680	UC-5368	5GA-T68	
C19	₀047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C20	100			1468-0001	DD-101	5W5T1	ED-100	UC-531	5GA-T1	
C21	₀0022	400		BPD-0022	D6-222	CUB6D22	GP-2200	GEM-6222	6TM-D22	
C22	₀001	400		BPD-001	DD-102	CUB4D1	ED-1000	GEM-421	6TM-D1	
C23	₀01	400		BPD-01	DD-103	CUB4S1	ED-01	GEM-411	4TM-S1	
C24	₀0047	600		BPD-0047	DD-472	CUB6D47	ED-0047	GEM-6247	6TM-D47	
C25	₀01	400		BPD-01	DD-103	CUB4S1	ED-01	GEM-411	4TM-S1	
C26	47			1468-000047	DD-470	5W5Q47	ED-47	UC-5447	5GA-Q47	
C27	₀022	400		BPD-02	DF-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C28	₀01	400		BPD-01	DD-103	CUB4S1	ED-01	GEM-411	4TM-S1	
C29	100			1468-0001	DD-101	5W5T1	ED-100	UC-531	5GA-T1	
C30	₀047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C31	330			1468-00033	DD-331	5W5T33	ED-330	UC-5333	5GA-T33	
C32	₀047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C33	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C34	4700			BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	①
C35	4700			BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	①

① Not used in some versions.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	H. H. SCOTT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	RCV-500KTT-3F	ABT-160		Q18-133XX	UDT-283	Loudness, Tap ⓐ 100K & 275K
B	Shaft			AK-3		Not Req.	Not Req.	
R2A	1Meg	½	RCV-1Meg-3F	B-70	A47-1Meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1Meg	½	RCV-1Meg-3F	B-70	A47-1Meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	500K	½	RCV-500K-3F	B-59	A47-500K-S	Q11-133	U50	Level
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	50K	½	RCV-50KL-3S	AB-31	A47-50K-S	Q11-123	SU-35	Hum Balance
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	H. H. SCOTT PART No.	IRC PART No.	
R6	47K			BTS-47K	
R7	270K			BTS-270K	
R8	2700Ω			BTS-2700	
R9	330K			BTS-330K	Note 2
R10	39K			BTS-39K	
R11	270K			BTS-270K	
R12	4.7Meg			BTS-4.7Meg	
R13	1.2Meg			BTS-1.2Meg	
R14	2.7Meg			BTS-2.7Meg	
R15	1Meg			BTS-1Meg	
R16	270K			BTS-270K	
R17	2700Ω			BTS-2700	
R18	47K			BTS-47K	
R19	1Meg			BTS-1Meg	
R20	470K			BTS-470K	
R21	1.5Meg			BTS-1.5Meg	Note 1
R22	4.7Meg			BTS-4.7Meg	
R23	22Meg			BTS-22Meg	Note 2
R24	2.2Meg			BTS-2.2Meg	
R25	3.3Meg			BTS-3.3Meg	
R26	100K	1		BTA-100K	
R27	1500Ω			BTS-1500	
R28	220K			BTS-220K	
R29	22K			BTS-22K	
R30	100K			BTS-100	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	H. H. SCOTT PART No.	IRC PART No.	
R31	100K	1		BTA-100K	
R32	1500Ω			BTS-1500	
R33	47K			BTS-47K	
R34	100K			BTS-100K	
R35	220K			BTS-220K	
R36	100K	1		BTA-100K	
R37	1800Ω			BTS-1800	
R38	12K			BTS-12K	
R39	2.2Meg			BTS-2.2Meg	
R40	270K			BTS-270K	
R41	100K	1		BTA-100K	
R42	1500Ω			BTS-1500	
R43	6800Ω			BTS-6800	
R44	330K			BTS-330K	
R45	1000Ω			BTS-1000	
R46	15K	10		1 3/4A-15K	
R47	15K	10		1 3/4A-15K	Note 2
R48	1000Ω			BTS-1000	
R49	330K			BTS-330K	
R50	3000Ω	4		PW4-3000	Note 3
R51	15K			BTS-15K	
R52	680K			BTS-680K	Note 2
R53	2000Ω	4		PW4-2000	Note 4
R54A	1500Ω	2			
B	160Ω	5			
C	33Ω	4			

Note 1. Some versions may use 1.8Meg
Note 2. Not used in some versions
Note 3. Some versions may use 2000Ω 5W
Note 4. Some versions may use 4700Ω 2W

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	H. H. SCOTT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ⓐ .97A	700VCT ⓐ .130A	5VAC ⓐ 3A	6.3VCT ⓐ 2.1A	TR-10-3	P9315	P2953 ①	PM8411 ①	22R07	R-16B ①

① Fabricate Mounting.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	H. H. SCOTT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7300Ω CT	16Ω tap ⓐ 8Ω, 4Ω	TRA-10-14						

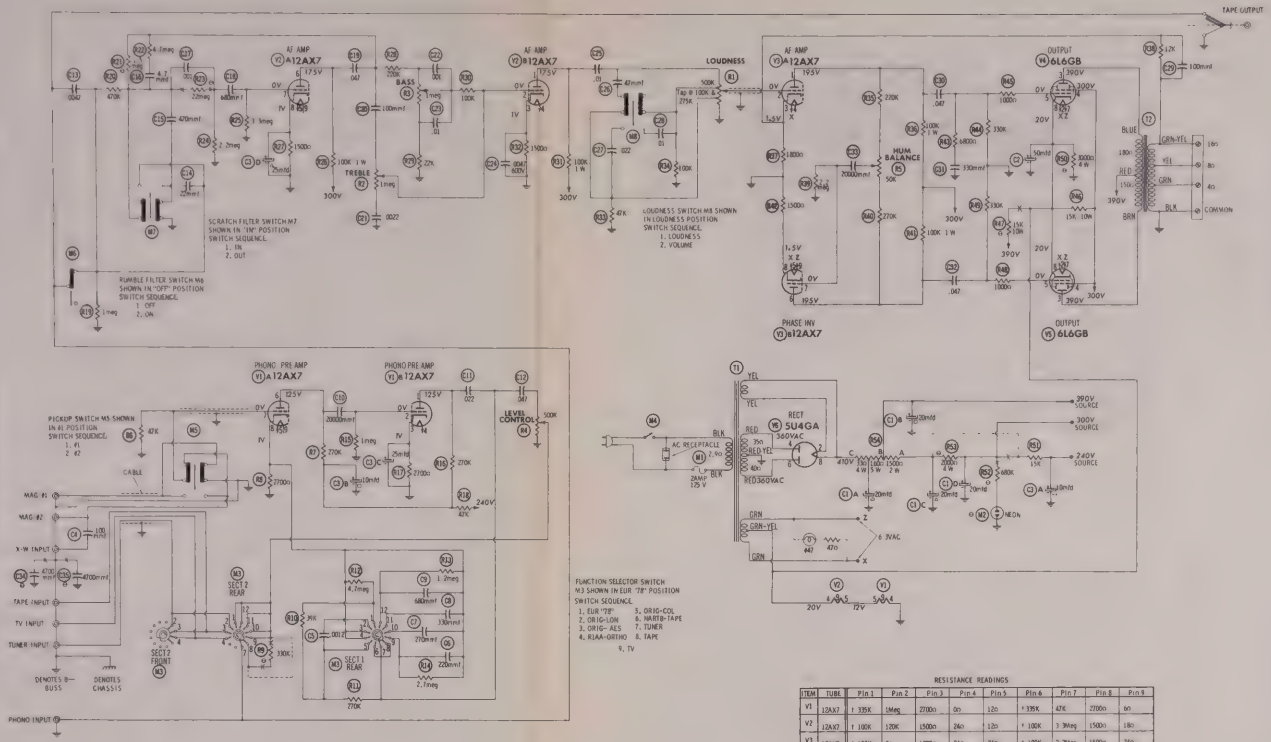
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			H. H. SCOTT PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	2A 125V S/B			313002. (3AG 2A-S/B)	342001	MDL2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	H. H. SCOTT PART No.	NOTES
M2	Lamp ①		Indicator (Neon)
M3	Switch		Function (Rotary Wafer Type)
M4	Switch		On-Off
M5	Switch		Pickup (Slide Type - DPDT)
M6	Switch		Rumble Filter (Slide Type - SPDT)
M7	Switch		Scratch Filter (Slide Type - DPDT)
M8	Switch		Loudness - Vol. (Slide Type - DPDT)

① Not Used In Some Versions



● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings
6. All controls at minimum, proper output load connected

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	† 335K	1Meg	2700Ω	0Ω	12Ω	† 335K	47K	2700Ω	0Ω
V2	12AX7	† 100K	120K	1500Ω	24Ω	12Ω	† 100K	3.3Meg	1500Ω	18Ω
V3	12AX7	† 100K	0Ω	1800Ω	24Ω	24Ω	† 100K	2.2Meg	1500Ω	24Ω
V4	6L6GB	0Ω	24Ω	† 370Ω	† 3650Ω	330K	TP	24Ω	3000Ω	
V5	6L6GB	0Ω	24Ω	† 340Ω	† 3650Ω	330K	TP	24Ω	3000Ω	
V6	5U4GA	NC	10K MIN	NC	35Ω	TP	40Ω	TP	10K MIN	

† MEASURED FROM PIN 2 OF V6
TP TIE POINT
NC NO CONNECTION

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PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

SILVERTONE CHASSIS 528.52000, 01, 02, 528.52010, 11, 12, 528.52020, 21, 22, 23, 24, 25, 26, 528.52030, 31, 32, 33, 34, 36

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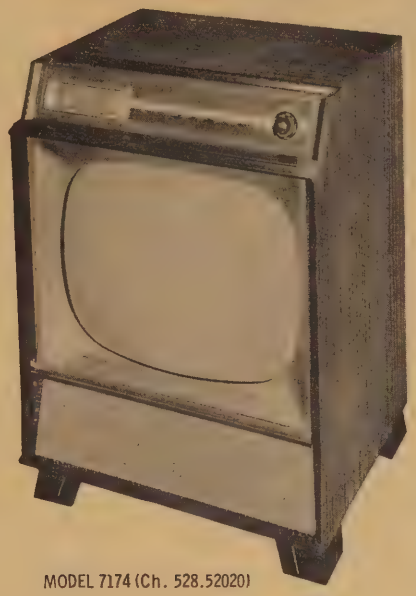
Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL 7174 (Ch. 528.52020)

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DENVER, COLORADO

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TRADE NAME	Silvertone	MODELS	CHASSIS
		7132, 7134, 7174, 7176, 7178	528.52000
		7132, 7134, 7174, 7176, 7178	528.52001
		7132, 7134, 7174, 7176, 7178	528.52002
		7133, 7135, 7175, 7177, 7179	528.52010
		7133, 7135, 7175, 7177, 7179	528.52011
		7133, 7135, 7175, 7177, 7179	528.52012
		7132, 7134, 7174, 7176, 7178	528.52020
		7132, 7134, 7174, 7176, 7178	528.52021
		7132, 7134, 7174, 7176, 7178	528.52022
		7132, 7134, 7174, 7176	528.52023
		7132, 7134, 7174, 7176	528.52024
		7132, 7134, 7174, 7176	528.52025
		7132, 7134, 7174, 7176	528.52026
		7133, 7135, 7175, 7177, 7179	528.52030
		7133, 7135, 7175, 7177, 7179	528.52031
		7133, 7135, 7175, 7177, 7179	528.52032
		7133, 7135, 7175, 7177	528.52033
		7133, 7135, 7175, 7177	528.52034
		7133, 7135, 7175, 7177	528.52036

SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois
TYPE SET	Television Receiver
TUBES	Sixteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle — RATING 155 Watts, 1.3 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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RETMA MEMBER

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DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 push-on type control knobs from the front.
2. Remove 8 wood screws and the rear cover.
3. Remove 2 wood screws and the AC interlock.
4. Remove the clock plug, yoke plug, focus plug, picture tube socket, HV lead, and 2 speaker leads from the audio output transformer.
5. Remove 4 hex nuts and the tuner assembly.
6. Remove 2 wood screws from the top chassis brace.
7. Remove 2 hex nuts holding the lower chassis brace.
8. Remove the chassis.
9. Remove 12 speaker nuts and 3 speakers.

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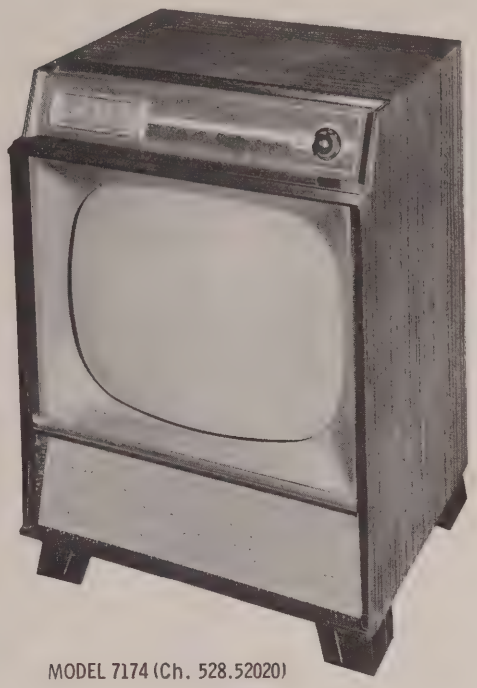

MODEL 7174 (Ch. 528.52020)

MODELS	CHASSIS
7132, 7134, 7174, 7176, 7178	528.52000
7132, 7134, 7174, 7176, 7178	528.52001
7132, 7134, 7174, 7176, 7178	528.52002
7133, 7135, 7175, 7177, 7179	528.52010
7133, 7135, 7175, 7177, 7179	528.52011
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7132, 7134, 7174, 7176, 7178	528.52020
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7132, 7134, 7174, 7176	528.52026
7133, 7135, 7175, 7177, 7179	528.52030
7133, 7135, 7175, 7177, 7179	528.52031
7133, 7135, 7175, 7177, 7179	528.52032
7133, 7135, 7175, 7177	528.52033
7133, 7135, 7175, 7177	528.52034
7133, 7135, 7175, 7177	528.52036

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of the VHF oscillator it is necessary to remove the chassis from the cabinet. (See disassembly instructions.)
Set the fine tuning at the center of its range. One slug for HIGH band adjustment is located at 10 o'clock, and should be adjusted first. The LOW band adjustment is located at 4 o'clock. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 3 wood screws holding the trim across the top edge of the safety glass. Tilt the glass out at the top and remove.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the Horizontal Frequency slug B1 until the picture synchronizes horizontally. (For location see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary A11 located on top of chassis.

FUSES

A 5Ω fusible resistor R89 is used for LV power supply protection. (For location see tube placement chart.)

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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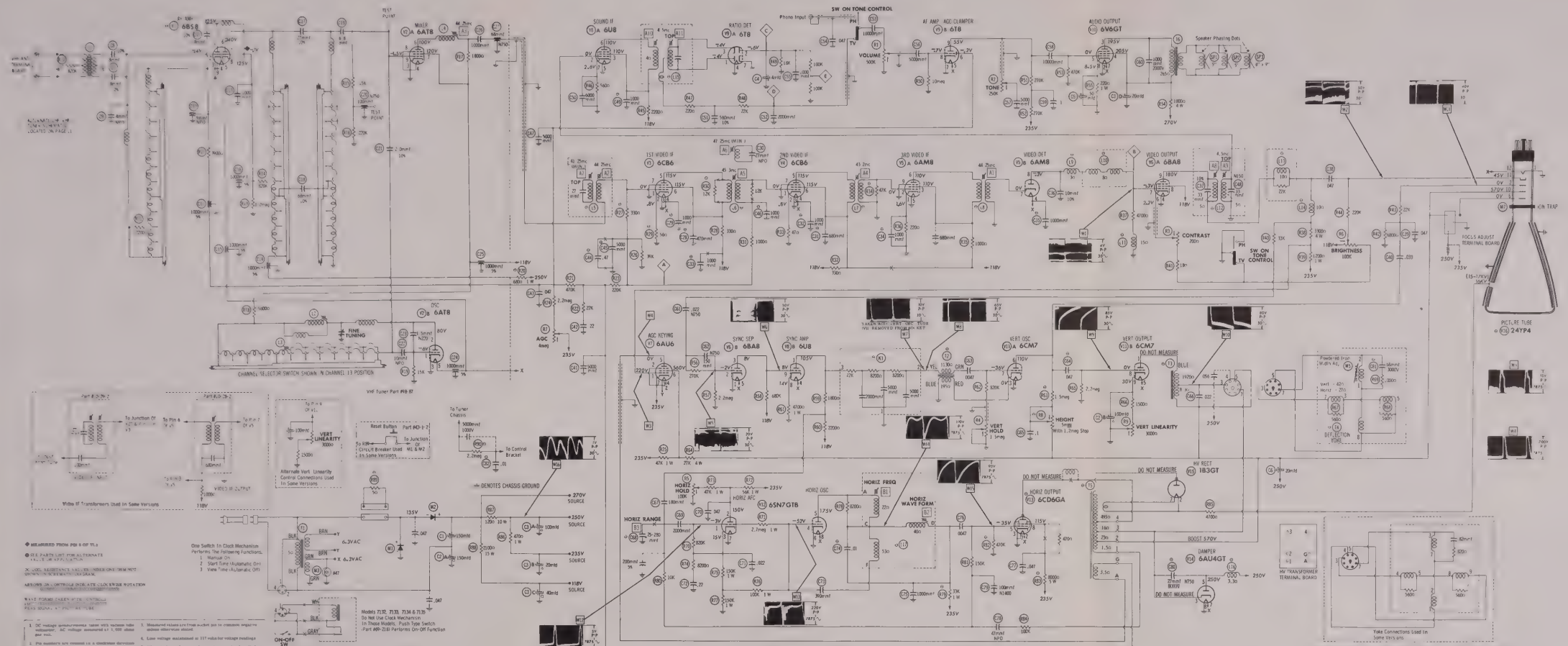
SW ON TONE CONTROL
SOUND IF
RATIO DET
AF AMP AGC CLAMPER
AUDIO OUTPUT
1ST VIDEO IF
2ND VIDEO IF
3RD VIDEO IF
VIDEO DET
VIDEO OUTPUT
MIXER
OSC
AGC KEYING
SYNC SEP
SYNC AMP
VERT OSC
VERT OUTPUT
HORIZ OSC
HORIZ FREQ
HORIZ WAVEFORM
HORIZ OUTPUT
HV RECT
DAMPER
PICTURE TUBE
ION TRAP
CONTRAST
BRIGHTNESS
VOLUME
TONE
HORIZ HOLD
HORIZ RANGE
HORIZ AFC
VERT HOLD
HEIGHT
VERT LINEARITY
FINE TUNING
AGC
DENOTES CHASSIS GROUND
DO NOT MEASURE
BOOST 570V
270V SOURCE
250V SOURCE
235V SOURCE
118V SOURCE
6.3VAC
6.3VAC
ON-OFF SW
VHF Tuner Part #98-87
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
Video IF Transformers Used In Some Versions
Alternate Vert. Linearity Control Connections Used In Some Versions
One Switch In Clock Mechanism Performs The Following Functions.
1 Manual On
2 Start Time (Automatic On)
3 View Time (Automatic Off)
Models 7132, 7133, 7134 & 7135 Do Not Use Clock Mechanism In These Models, Push Type Switch Part #69-2181 Performs On-Off Function
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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TUBE PLACEMENT CHART

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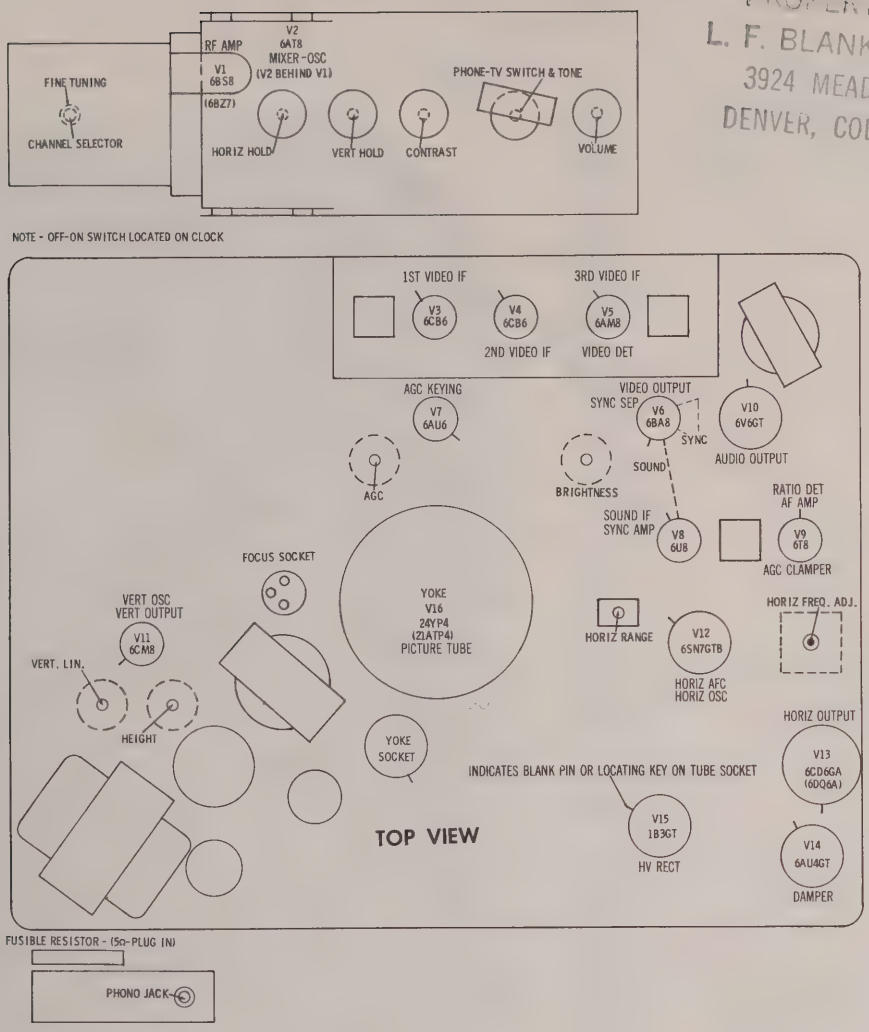

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R89), Rectifier (M1, M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, V6**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V16**
Has pic, no sound - **V8, V9, V10**
Overloaded picture - **V7**

SYNC FAILURE
No vert. sync - **V6, V8**
No horiz. sync - **V6, V8, V12**
No vert. or horiz. sync - **V6, V8**

SWEEP FAILURE
No raster, has sound - **V12, V13, V14, V15, V16**
No vertical deflection - **V11**
Poor vert. linearity or foldover - **V11**
Poor horiz. linearity or foldover - **V12, V13, V14**
Narrow picture - **V12, V13, V14, M1, M2**
Vert. off freq. - **V11**
Horiz. off freq. - **V12**

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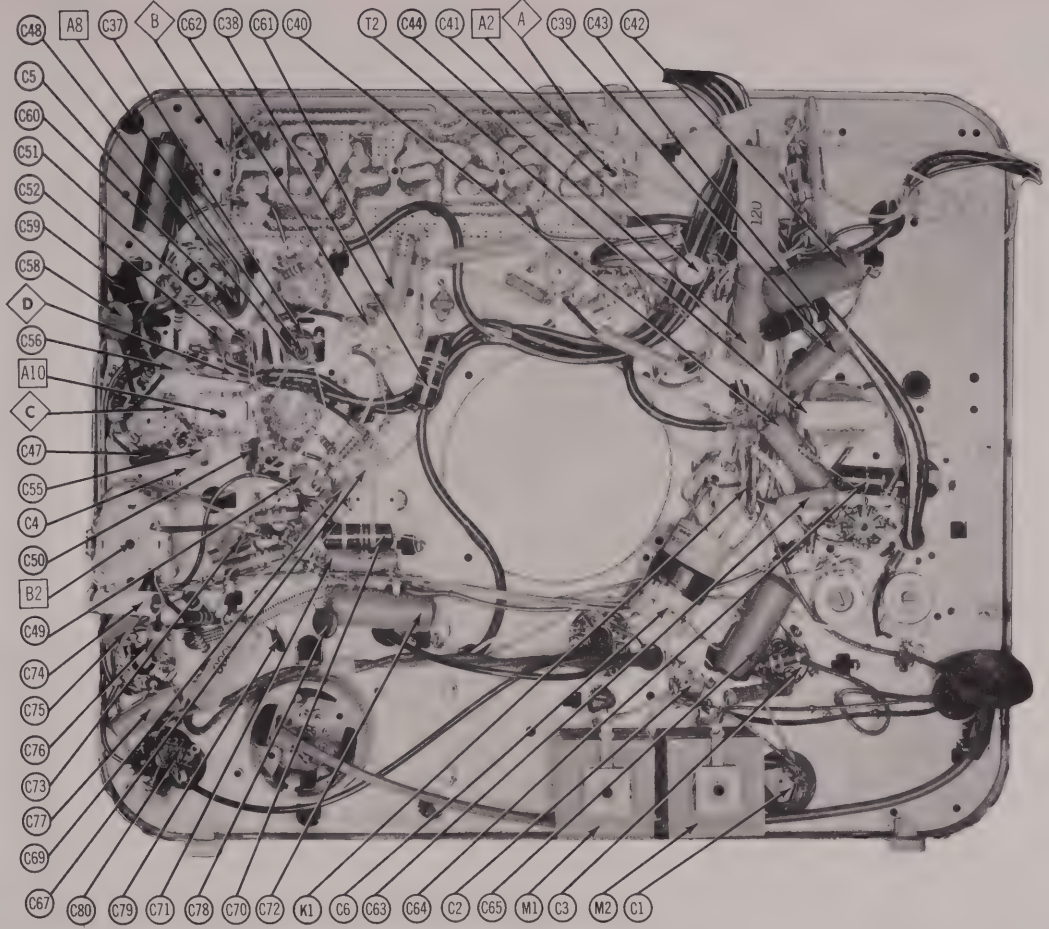
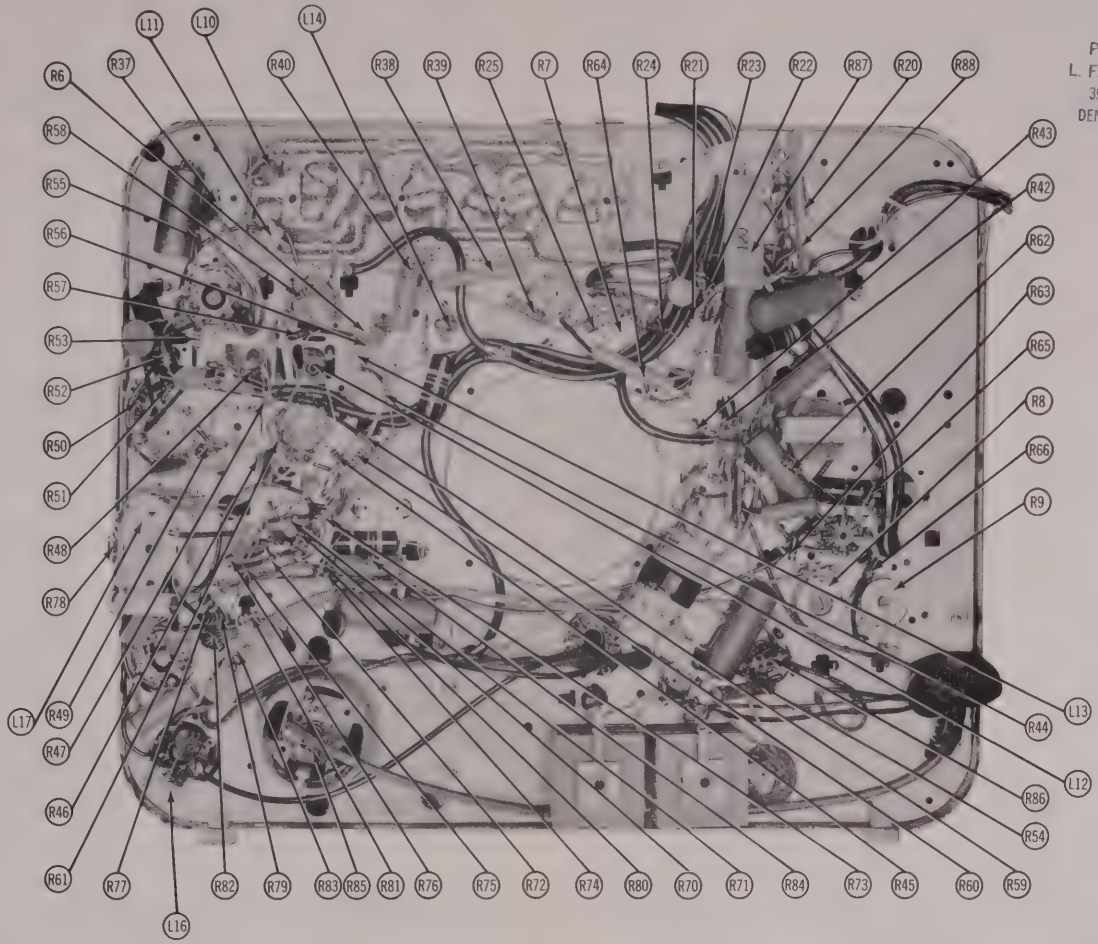


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point Ⓐ. Positive to chassis.
Detune A2, A3, A5, A6 and A7 by turning cores almost out of coil froms.
Use only enough generator output to provide a usable indication on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-oscillator tube (V2). Low side to chassis.	44.25MC (Unmod)	Any non-interfering channel	DC probe to point Ⓑ. Common to chassis.	A1	Attenuate generator output to maintain not more than -2.5 volts on VTVM. Adjust for maximum deflection.
2.	"	"	44.25MC	"	"	A2, A3	"
3.	"	"	43.2MC	"	"	A4	"
4.	"	"	45.3MC	"	"	A5	Attenuate generator output to maintain not more than -2.5 volts on VTVM. Adjust for maximum deflection. A5 may be top or bottom slug.
5.	"	"	47.25MC	"	"	A6	Increase generator output. Adjust for MINIMUM deflection. A6 may be top or bottom slug. Repeat steps 4 and 5.
6.	"	"	41.25MC	"	"	A7	Increase generator output. Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Attenuate sweep generator output to maintain not more than 2 volts peak to peak on scope (-3 volts DC at point Ⓑ).
If a separate marker generator is used, couple loosely to the sweep generator output cable.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to ungrounded tube shield floating over mixer-oscillator tube (V2). Low side to chassis.	44.25MC (10MC Swp)	41.25MC 42.75MC 43.8MC 44.25MC 45.0MC 45.75MC 47.25MC	Any non-interfering channel	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis.		Check for response similar to Fig. 1. Adjust A3 to place 45.75MC at 50%. Adjust A2 for proper tilt.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point Ⓒ to chassis. The junction of these two resistors is alignment point Ⓔ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.001MFD	High side to point Ⓑ. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓒ. Common to chassis.	A8, A9, A10	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to point Ⓓ. Common to point Ⓔ.	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

4.5MC TRAP ALIGNMENT

Tune in a local TV station and inspect the picture for evidence of 4.5MC beat interference. If necessary, adjust A8 until the horizontal scanning lines are smooth and continuous.

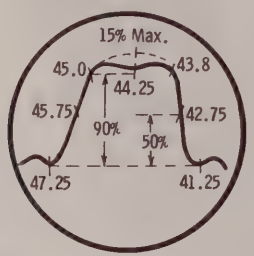
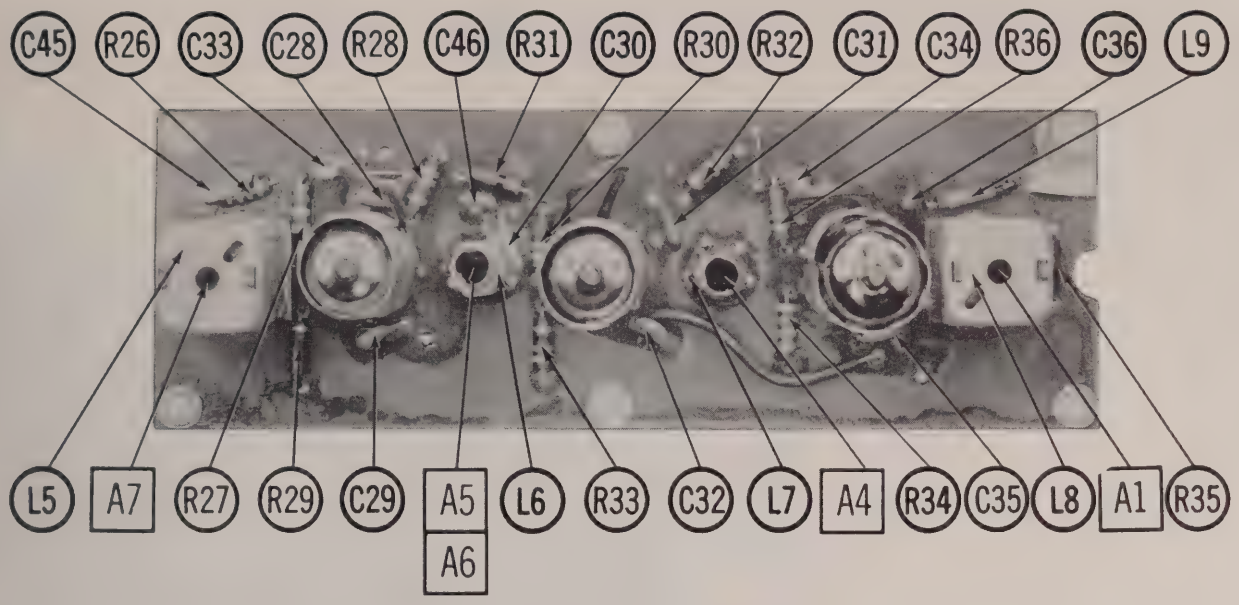
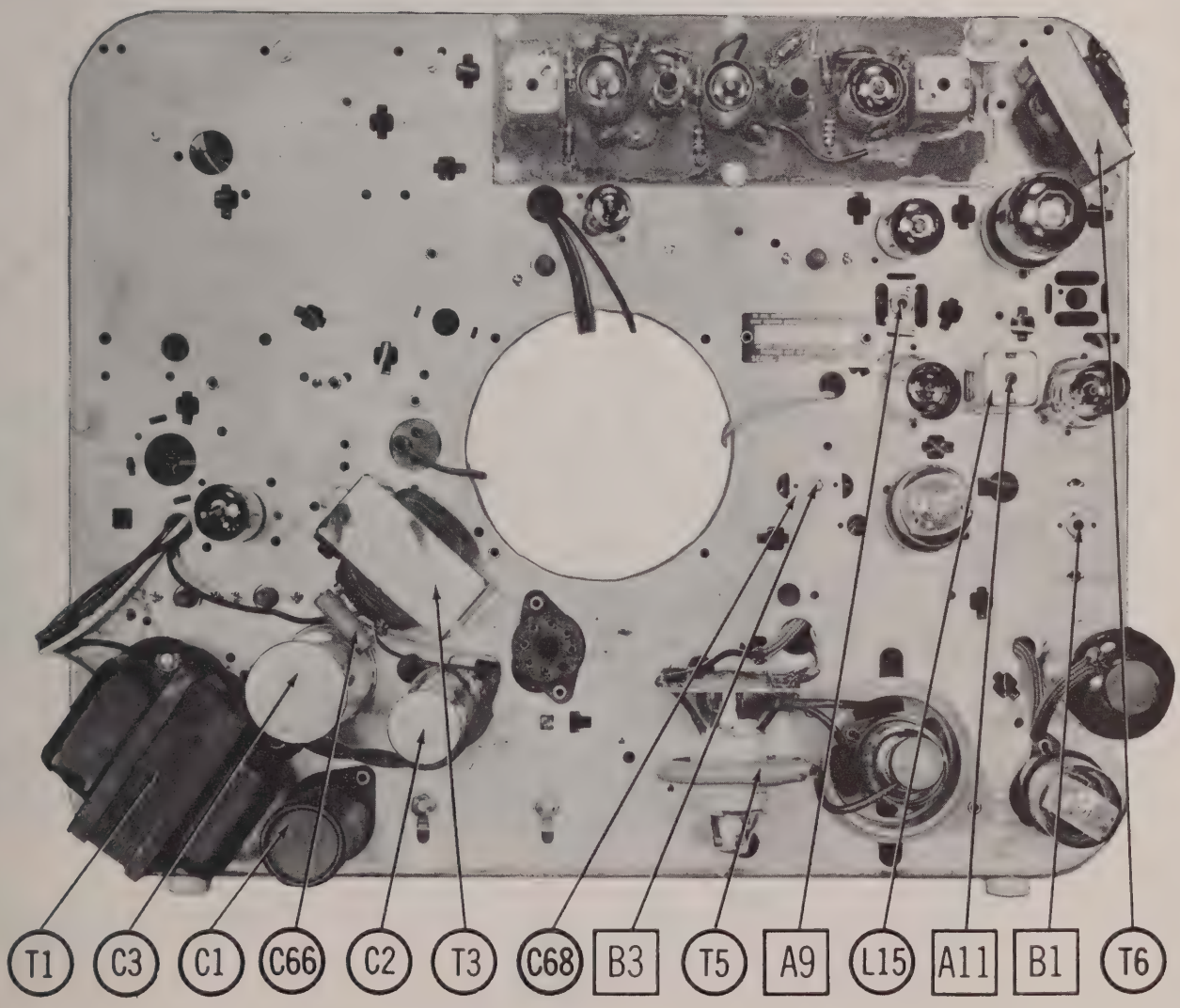


FIG. 1



CHASSIS TOP VIEW

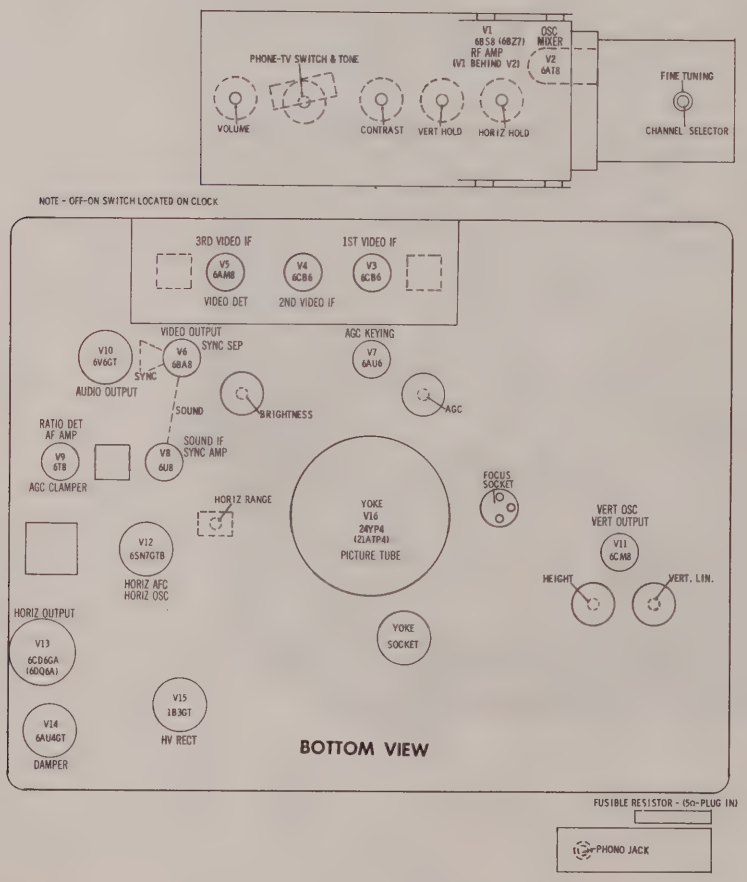


VIDEO IF PRINTED BOARD

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BS8	INF	700K	0Ω	0Ω	.1Ω	†700Ω	460K	INF	0Ω
V2	6AT8	15K	†7700Ω	0Ω	0Ω	.1Ω	†3900Ω	†2100Ω	0Ω	235K
V3	6CB6	39K	56Ω	0Ω	.1Ω	†2400Ω	†2400Ω	0Ω		
V4	6CB6	40K	47Ω	0Ω	.1Ω	†2400Ω	†2400Ω	0Ω		
V5	6AM8	220Ω	.1Ω	†3400Ω	.1Ω	0Ω	†3400Ω	.1Ω	4700Ω	0Ω
V6	6BA8	0Ω	2.2Meg	†680K	0Ω	.1Ω	•82Ω	4700Ω	†2100Ω	†4900Ω
V7	6AU6	†1800Ω	†590Ω	†590Ω	†590Ω	260K	‡27K	†590Ω		
V8	6U8	†6100Ω	5Ω	†4300Ω	.1Ω	0Ω	†4300Ω	560Ω	4700Ω	†680K
V9	6T8	INF	18K	INF	0Ω	.1Ω	• 630K	0Ω	10Meg	†540K
V10	6V6GT	NC	0Ω	†2000Ω	†1800Ω	470K	TP	.1Ω	220Ω	
V11	6CM7	‡1940Ω	NC	195Ω	0Ω	.1Ω	• †4Meg	• 1.4Meg	2.2Meg	• 2200Ω
V12	6SN7GTB	1.1Meg	†35K	300K	250K	†33K	0Ω	0Ω	.1Ω	
V13	6CD6GA	NC	.1Ω	0Ω	NC	470K	NC	0Ω	†8600Ω	TOP CAP ‡16Ω
V14	6AU4GT	NC	NC	¶	TP	†120Ω	NC	.1Ω	0Ω	
V15	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡511Ω
V16	24YP4	0Ω	29K	PIN 6 0Ω	PIN 10 ‡12Ω	PIN 11 230K	PIN 12 .1Ω			

† MEASURED FROM OUTPUT OF M2.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
‡ MEASURED FROM PIN 3 OF V14.
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION
TP TIE POINT



TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

SILVERTONE CHASSIS 528.52000, 01, 02, 528.52010, 11, 12, 528.52020, 21, 22, 23, 24, 25, 26, 528.52030, 31, 32, 33, 34, 36

ALTERNATE TUNER SCHEMATIC

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amplifier	6BA6	Note 1
V2	Mixer Oscillator	6AT6	
V3	1st Video IF Amp	6CB6	
V4	2nd Video IF Amp	6CB6	
V5	3rd Video IF Amp - Video Det	6AM8	
V6	Video Output-Sync Sep	6BA8	
V7	AGC Keying	6AU6	
V8	Sound IF Amp.-Sync Amp.	6U8	
V9	Ratio Det.-AGC Clamper	6T8	
V10	Audio Output	6V6GT	
V11	Vert. Osc.-Vert. Output	6CM7	
V12	Horiz. AFC-Horiz Osc	6BN7GTB	
V13	Horiz. Output	6CD6GA	Note 2
V14	Damper	6AU4GT	
V15	HV Rectifier	1B3GT	

Note 1. Some versions may use a 6BZ7 in this application.
Note 2. Some versions may use a 6DQ6A in this application.

PICTURE TUBE

ITEM No	REPLACEMENT DATA			NOTES
	SILVERTONE Part No	GENERAL ELECTRIC Part No	SYLVANIA Part No	
V16	24YP4	24YP4	24YP4 ①	① Aluminized
			24DP4A ②	② Silver Screen "85
			24DP4	
	21ATP4	21ATP4A/21ATP4	21ATP4	
			21ATP4A ②	

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						NOTES
	CAP	VOLT	SILVERTONE Part No	AEROVOX Part No	CORNELL DUBILIER Part No	MALLORY Part No	PYRAMID Part No	SANGAMO Part No	SPRAGUE Part No
C1	150	150	18-7-4	AFHL-24	X402E1	FP1U7	TMS-25	T-050	TVL-1429
C2A	40/50	150	18-8-4		X402E1	FP1U7	TMS-25	T-050	R2384 *
B	40/50	50			DHL-005	*TC1500	TD-100-50	MT-40/100	
C3A	100	100	18-20-3	AFHL-23-00	4D0044	FP4HL3		SQ-535	R2385 *
B	20	300			BR2038	*TC17		MTD-2330	
C	80	300							
D	20	300							
C4	50	25	18-25-0	PRS250Y4	BBR4-50	TC30	TD-4-50	MT-0804	TVA-1308
C5	50	25	18-23-0	PRS25V50	BBR50-25	TC29	TD-50-25	FM-0250	TVA-1208
C6	20	400	18-39-0	PRS450V20	BR2045	TC75	TD 20 450	FM-4520	TVA-1709

* Non-rotating item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP	VOLT	SILVERTONE Part No	AEROVOX Part No	CENTRALAB Part No	CORNELL DUBILIER Part No	ERIE Part No	MALLORY Part No	SPRAGUE Part No
C7	8		162-909	NPO-SI 8		C10Y8C			10%
C8	8		162-809	NPO-SI 8		C10Y8C			10%
C9	4					C10Y4C			NPO
C10	9		245-909						NPO
C11	1000		244-1	EF-001	MPT-1000				503C-DI
C12	18		210-189	NPO-SI 1.8		C20Y2C			SHK-DI
C13	1000		2033-32	BPD-001	DD-032	BYA8DI	ED-1000	DC521	SHK-DI
C14	1000		244-1	EF-001	MPT-1000				503C-DI
C15	1000		244-1	EF-001	MPT-1000				503C-DI
C16	1000		244-1	EF-001	MPT-1000				503C-DI
C17	.37		210-378		TCZ-R66		TCO-58		10%
C18	.68		210-868		TCZ-R66	CY068C	TCO-6 S	ZT-5568	STCCB-V68
C19	6.8		228-869	NPO-SI 6 6	TCZ-6R8	CY068C	TCO-6 S	ZT-5568	STCCB-V68
C20	100		248-101						N750
C21	2.0		210-209	NPO-SI 2.0	TCZ-2R2	C10Y2C			10%
C22	10		163-100	NPO-SI 10	TCZ-10	C10Y2C	TCO-10	ZT-541	STCC-QI
C23	1.5		171-159						N220
C24	1000		244-1	EF-001	MPT-1000				503C-DI
C25	1000		244-1	EF-001	MPT-1000				503C-DI
C26	1000		2033-33	BPD-001	DD-032	BYA8DI	ED-1000	DC521	SHK-DI
C27	68		248-680						N750
C28	470		18-47U1	BPD-00047	DD-470	BYA07W7	ED-470	UC-5547	SGA-T47
C29	1000		18-102U1	BPD-001	DD-032	BYA8DI	ED-1000	DC521	SHK-DI
C30	27			NPO-SI 25	TCZ-27	C10Q27C	TCO-27		N750
C31	680		18-68U1	BPD-00068	DD-680	LU0768	ED-680	UC-5368	SHK-T68
C32	1000		18-102U1	BPD-001	DD-032	BYA8DI	ED-1000	DC521	SHK-DI
C33	1000		18-102U1	BPD-001	DD-102	BYA8DI	ED-1000	DC521	SHK-DI
C34	1000		18-102U1	BPD-001	DD-102	BYA8DI	ED-1000	DC521	SHK-DI
C35	1000		18-102U1	BPD-001	DD-102	BYA8DI	ED-1000	DC521	SHK-DI
C36	10		18-10U1	NPO-SI 10	TCZ-10	C10QC	TCO-10	ZT-542	SGA-QI
C37	33			NPO-SI 33	TCZ-33	C10Q33C	TCO-33	ZT-5433	SGA-Q33
C38	047	400	18-47S6	BPD-05	DF-503	CUB4547		GEM-4147	4TM-S47
C39	047	400	18-47S5	BPD-05	DF-503	CUB4547		GEM-4147	4TM-S47
C40	033	600	18-33S7	BPD-03	DF-303	CUB3S33		GEM-5133	5TM-S33
C41	5000		18-502U1	BPD-005	DD-502	BYA005	ED-005	DC525	SHK-D5
C42	22	200	18-22S25	P28N-22		CUB2P22		GEM-2022	2TM-P22
C43	047	600	18-47S48	BPD-05	DF-503	CUB4547		GEM-4147	4TM-S47
C44	47	200	18-47S28	P28N-47		CUB2P47		GEM-2047	2TM-P47
C45	5000		18-502U1	BPD-005	DD-502	BYA005	ED-005	DC525	SHK-D5
C46	5000		18-102U1	BPD-001	DD-502	BYA8DI	ED-5000	DC525	SHK-DI
C47	5000		18-502U1	BPD-005	DD-502	BYA005	ED-5000	DC525	SHK-D5
C48	33								N150
C49	1000		18-102U1	BPD-001	DD-102	BYA8DI	ED-1000	DC521	SHK-DI
C50	5000		18-502U1	BPD-005	DD-502	BYA005	ED-005	DC525	SHK-D5
C51	560		18-56S1		DD-561		ED-560	DC521	
C52	2000		18-202U6	BPD-002	DD-202	BYA802	ED-002	DC522	SHK-D2
C53	1000		18-102U7	BPD-01	DD-102	BYA8DI	ED-01	DC521	SHK-DI
C54	047	600	20-S47-1	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47
C55	1000		18-102U7	BPD-001	DD-102	BYA8DI	ED-1000	DC521	SHK-DI
C56	5000		18-502U7	BPD-005	DD-502	BYA005	ED-005	DC525	SHK-D5
C57	5000		18-502U6	BPD-005	DD-502	BYA005	ED-005	DC525	SHK-D5
C58	1500		18-152U7	BPD-015	DD-152	BYA801	ED-01	DC521	SHK-DI
C59	1	400	18-1S48		DF-104	CUB4P1		GEM-401	4TM-P1
C60	3000		18-302U6	BPD-003	DD-302	HVB302A		DC5702	2GHK2D-DI
C61	022	400	18-22S48	BPD-03	DF-203	CUB4S22	ED-03	GEM-4122	4TM-S22
C62	150		18-15U14	BPD-01 150	TCN-150	C10T15D	TCT-15D		N750
C63	0047	600	18-47S7	BPD-0047	DD-472	CUB5D47	GP-4700	GEM-5247	5TM-D47
C64	047	600	20-S47-1					GEM-601	6TM-P1
C65	1	600	20-E-1	P688N-1	DF-104	CUB6P1		GEM-5123	5TM-S23
C66	022	200	18-22S37	BPD-02	DF-203	CUB2S23	ED-03	MB-3S1	2TM-P22
C67	180		17-181U	1464-00018		1R3T18			
C68	25-280		19-152-0						
C69	2000		18-202U6	BPD-002	DD-202	BYA802	ED-002	DC522	SHK-D2
C70	047	400	18-47S48	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47
C71	022	200	18-22S27	BPD-02	DF-203	CUB2S22	ED-02	GEM-5222	5TM-S22
C72	22	200	18-22S38			CUB2P22		GEM-2022	2TM-P22
C73	680		17-68U9			1R3T39		MB-539	
C74	01	600	20-19-1						
C75	1000		17-102U9	1464-0001	DD-102	SRA01	ED-1000	DC521	SHK-DI
C76	0047	600	18-47S2	BPD-0047	DD-472	CUB2D47	GP-4700	GEM-6247	6TM-D47
C77	047	400	18-47S48	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47
C78	47	200	18-47S28	P28N-47		CUB2P47		GEM-2047	2TM-P47
C79	100		15-10U15						
C80	27	4000	15-270414						
C81	68	1000		HVD-30-68	DD30-680	HVB30Q68		DC30468	30GAH-Q68
C82	01	600	20-S01-1		DD-103	CUB5D10	GP-10000	GEM-5110	5TM-S10

REPLACEMENT DATA

ITEM No.	CAP	RATING VOLT	SILVERTONE Part No	CENTRALAB Part No	CORNELL DUBILIER Part No	ERIE Part No	MALLORY Part No	SPRAGUE Part No	NOTES
C76	0047	600	18-47S7	BPD-0047	DD-472	GP-4700	GEM-6247	6TM-D47	
C77	047	400	18-47S48	BPD-05	DF-503		GEM-4147	4TM-S47	
C78	47		18-47S1L		CUB4S47			47TM-S47	
C79	100		15-10U15		CUB2D47		C30Q47C		
C80	27	4000	15-270414						
C81	68	1000		HVD-30-68	DD30-680	HVB30Q68		DC30468	30GAH-Q68
C82	01	600	20-S01-1	BPD-01	DD-103	CUB5D10	GP-10000	GEM-5110	5TM-S10

① In Chassis 528.52000, 528.52001, 528.52002 and 528.52011, a 560MMF, 10%, (Part #18-5601) is used in this application.
② In Chassis 528.52000, 528.52001, 528.52002 and 528.52011, a (one-half) of a dual capacitor (Part #18-1021) is used in this application.
Not used in Ch. 528.52000, 528.52001, 528.52002 and 528.52011 in this application.
Not used in Ch. 528.52034 and 528.52035 in this application.
In some versions this component may be a 5000MMF (Part #18-5021).
This is a special component.
In Ch. 528.52034, 528.52035, 528.52034, 528.52036, a 300MMF, 500V, 10%, M750 Disc (Part #18-3011/4) is used in this application.
In Ch. 528.52034, 528.52035, 528.52034, 528.52036, an 18MMF, 4000V, 10% M750 Disc (Part #18-1804/4) is used in this application.
Nominal value. Replace with original value.
Alternate part #20-847-1.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE Part No	CENTRALAB Part No	IRC Part No.	MALLORY Part No.		
R1A	500K	1	24-151	B-50	A47-500K-2	QB3-133	U48	Volume
B	Shaft			Not Req.	KSB-3	Not Req.	Not Req.	
R2A	250K	½	25-95					Tone
B	Switch							Phono & TV switch
R3A	200Ω	½	25-41	B-3	A47-500-3	QU-201	U2	Contrast
B	Shaft			Not Req.	KSB-3	Not Req.	Not Req.	
R4A	1.5Meg	½	24-343	B-743	A47-1.5Meg-3	QU-138	U48	Vert. Hold
B	Shaft			Not Req.	KSB-3	Not Req.	Not Req.	
R5A	100K	½	25-94	B-60	A47-100K-3	QU-138	U61	Horiz. Hold
B	Shaft			Not Req.	KSB-3	Not Req.	Not Req.	
R6A	100K	½	25-40	B-60	A47-100K-6	QU-138	TA18L	Brightness
B	Shaft			Not Req.	KSB-3	Not Req.	Not Req.	
R7A	4Meg	½	25-58	AB-66	A47-4Meg-6	QU-141	PTA68L	AGC Control
B	Shaft			AK-19	KN-3	TQ	Not Req.	
R8A	5Meg	½	25-61	AB-56 *	A47-5Meg-6*	QU-141 *		Height with 1.5meg stop-Note 1
B	Shaft			AK-19	KN-3	TQ		
R9A	1000Ω	½	25-23	AB-8	A47-1000-8	QU-113	PTA32L	Vert. Lin.
B	Shaft			AK-19	KN-3	TQ	Not Req.	

* Use a 1.5Meg resistor in series with the right hand terminal.
Note 1. In some versions a 3.5Meg control with a 1.5Meg stop may be used. Supplier specifies to replace with a 5Meg control and change value of R63 to 1.5Meg

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SILVERTONE Part No.	IRC Part No.	
R10	820K		106-824	BTS-820K	
R11	3900Ω		106-392	BTS-3900	
R12	3300Ω		106-332	BTS-3300	
R13	1.5Meg		106-125	BTS-1.5Meg	
R14	820K		106-824	BTS-820K	
R15	15K		106-153	BTS-15K	
R16	220K		111-224	BTS-220K	
R17	1800Ω		106-182	BWT-1800	
R18	5600Ω		106-562	BTS-5600	
R19	15K		106-153	BTS-15K	
R20	680Ω	1	60-681U	BTA-680	Note 1
R21	470K		60-4740U		
R22	82K		60-2830U		
R23	330Ω		60-3301U		
R24	1.5Meg		60-2505U		
R25	47K	1	60-473U	BTA-47K	
R26	33K		60-3303U	BTS-33K	
R27	330Ω		60-3301U		Note 2
R28	330Ω		60-3301U	BTS-330	
R29	56K		60-5603U	BTS-56	Note 3
R30	12K		60-1203U		Note 4
R31	680Ω		60-1601U		
R32	330Ω		60-3301U	BTS-330	
R33	47Ω		60-4700U	BTS-47	
R34	47K		60-4730U		Note 6
R35	1000Ω		60-1021U	BTS-1000	
R36	220Ω		60-2201U	BTS-220	
R37	4700Ω		60-4720U	BTS-4700	
R38	3300Ω	4	61-20	PWT-3300	Note 6, 7
R39	1200Ω	1	60-1221U	BTA-1200	
R40	33K		60-3303U	BTS-33K	
R41	18Ω		60-1800U	BTS-18	
R42	6800Ω		60-6821U	BTS-6800	
R43	22K		60-2230Z	BTS-22K	
R44	220K		60-2240U	BTS-220K	
R45	2200Ω		60-2221U	BTS-2200	
R46	560Ω		60-5610U	BTS-560	
R47	220Ω		60-2201U	BTS-220	
R48	22K		60-2230Z	BTS-22K	
R49	15K		60-1830U	BTS-15K	
R50	10Meg		60-1060U	BTS-10Meg	

Note 1. Some versions may use a 330Ω in this application.
Note 2. Some versions may use a 5600Ω in this application.
Note 3. Some versions may use a 47Ω in this application.
Note 4. Not used in some versions.
Note 5. Some versions may use a 10K in this application.
Note 6. Some versions may use a 2.2Meg in this application.
Note 7. Some versions may use a 39K, 1W in this application.
Note 8. Some versions may use a 1Meg in this application.
Note 9. Some versions may use a 680Ω, 1W in this application.
Note 10. Some versions may use a 4.5Ω, 10W (Part #61-415) in this application.
Note 11. Some versions may use a 470K in this application.

ITEM No.	RATING		REPLACEMENT DATA					NOTES
	OHMS	WATT	SILVERTONE Part No.	IRC Part No.				
R51	270K		60-2740U	BTS-270K				
R52	270K		60-2740U	BTS-270K				
R53	470K		60-4740U	BTS-470K				
R54	1800Ω	4	61-33					
R55	330Ω	1	60-3311U	BTA-220				
R56	270K		60-2740U	BTS-270K				
R57	2.2Meg		60-2255U	BTS-2.2Meg				
R58	680K		60-6840U	BTS-680K				
R59	1800Ω		60-1820U	BTS-4700				
R60	220Ω		60-2331U	BTS-3200				
R61	4700Ω	1	60-4731U	BTS-4700				
R62	680K		60-6840U	BTS-680K				
R63	1.5Meg		60-1505U	BTS-1.5Meg				Note 8
R64	27K	4	61-31					
R65	2.2Meg		60-2255U	BTS-2.2Meg				
R66	1500Ω		60-1521U	BTS-1500				
R67	56KΩ							
R68	560Ω							
R69	1000Ω							
R70	820K		60-8240U					
R71	2.7Meg	1	60-2735U					
R72	56K	1	60-5631U					
R73	47K	1	60-4731U					
R74	2200Ω		60-2231U					
R75	150K	1	60-1541U					
R76	100K	1	60-1041U					
R77	150K	1	60-1541U					
R78	220Ω	1	60-2231U					
R79	33K	1	60-3321U					
R80	10K		60-1031U	BTS-10K				
R81	150K		60-1541U	BTS-150K				
R82	470K		60-4740U	BTS-470K				Note 7, 8
R83	8000Ω	5	61-58	1 3/4A-8000				Note 8, 9
R84	100K		60-1040U	BTS-100K				
R85	4700Ω		60-4720U	BTS-4700				
R86	470Ω	1	60-4711U	BTA-470				
R87	120Ω	10	61-14					
R88	2800Ω	10	60-2251					
R89	5Ω		43-101					Note 9, 10
R90	2.2Meg		61-7	BTS-2.2Meg				Note 10, 11

TRANSFORMER (FILAMENT)

ITEM No.	RATING			REPLACEMENT DATA				
	PRI	SEC 1	SEC. 2	SILVERTONE Part No	Halldorson Part No	Merit Part No	Stancor Part No	Thordarson Part No	Triad Part No
T1	117VAC ⑨, 60A	6.3V ⑨, 3A	6.3V ⑨, 3A	80-382					

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA							
		SILVERTONE Part No	Halldorson Part No	Merit Part No	RCA TYPE No	Ram Part No	Stancor Part No	Thordarson Part No	Triad Part No
T2	Vert Osc	580-360-A	28702	A-3003	209T1 ①	V405	A-8125	25A03	A-97X
T3	Alt. Vert. Osc.	580-380							
	Vert. Output	580-377	21808 ①	A-3039 ①	210T1 ①	V312 ①	A-8141 ①	26S54 ①	A-104X ①
	Alt. Vert. Output	580-377							
T4A	Yoke-Horiz (525HS (90°) Vert. (45MH)	CIC-815B ②	DF607 ②	MDF-893 ②	235D6 ②	V907F19/43 ②	DY-16A ②	Y-16 ②	Y-41 & NW3 ②
B	Alt. Yoke	10-815							
	Alt. Yoke	10-827							
	Alt. Yoke	80-14							
	Centering Device	83-916							
	Width Device	83-962							
T5	Horiz. Output	D80-378		A-9040 ④ NWC-1 *		2244 *	HO-374 *	FLY-137 *	
	Alt Horiz. Output	80-378		A-9040 ④ NWC-1 *		2244 *	HO-374 *	FLY-137 *	
	Alt Horiz. Output	80-415							

① Drill new mounting hole(s).
② Includes resistors R87, R88, R89, capacitor C81, centering device, width device and yoke plug.
③ Jumper yoke terminals #1 and #6; connect yoke terminal #3 to yoke plug pin #7; yoke terminal #4 to yoke plug pin #8; yoke terminal #4 to yoke plug pin #3. When replacing yoke in chassis 528.53034 and 528.53044 remove jumper from yoke terminals #1 and #6; connect yoke terminal #1 to yoke plug pin #4; connect yoke terminal #6 to yoke plug pin #6. Use original rear cover, centering device and width sleeve.
④ Use original horizontal yoke damping network, if necessary.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL (CONNECTIONS)	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
4	4	4	4	4	4	4	
3	3	3	3	3	3	3	
2	2	2	2	2	2	2	
1	1	1	1	1	1	1	
A	A	Blue Term. Of MWC-1	A	G	A	A	
G	G	Red Term. Of MWC-1	G	A	G	G	
Connect Width Coil Here		Orig. & Blk Terms of MWC-1 Across #2 &1					
Special Notes							

$ If AGC does not function properly, reverse width coil primary or secondary

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE		REPLACEMENT DATA				NOTES
	PRI	SEC	SILVERTONE Part No	Halldorson Part No	Merit Part No	Thordarson Part No	Triad Part No
T6	3500Ω	2Ω	80-389	21006	A-2902	A-3849	26249	S-53X

SPEAKER

ITEM No.	TYPE				REPLACEMENT DATA		NOTES
	SIZE	FIELD	V C IMP		SILVERTONE Part No	QUAM Part No	
SP1	5"	PM	6-8Ω		79-452 ①	5AUR2S ①	① Parallel & Phase
SP2	5"	PM	6-8Ω		79-452 ①	5AUR2S ①	
SP3	8"X5"	PM	3-4Ω		79-478 ①	8AA5 ①	

COILS (RF-IF)

ITEM No	USE	SILVERTONE Part No	NOTES
L1	Ant. Trans	2246-1	
L2	Osc. Coil	538L-7	Channel 1
L3	Osc. Coil	538L-8	Channel 6
L4	Mixer Plate Coil	2110-8	

ITEM No	USE	REPLACEMENT DATA				NOTES
		SILVERTONE Part No.	MEISSNER Part No	MERIT Part No	MILLER Part No	
L5	1st. Video IF	10-9-2 ①				Includes 4. 25MC Trap
L6	2nd. Video IF	10-6-3 ②				Includes 47. 25MC Trap
L7	3rd. Video IF	10-6-3 ③				
L8	4th Video IF	10-6-2 ④				
L9	Tweet Peaking Coil	10-85-1 ⑤				12 Microhenries
L10	Series Peaking Coil	10-12-1 ⑥	19-3125		6153	120 Microhenries
L11	Shunt Peaking Coil	10-56-1 ⑦	19-3200	TV-155	6150	250 Microhenries
L12A	4.5MC Trap	10-61-1 ⑧				
B	1st. Sound IF					
L13	Series Peaking Coil	10-10-1 ⑨	19-4201 *		6154*	220 Microhenries, wound on 22K resistor
L14	Shunt Peaking Coil	10-87-1 ⑩	19-4201		6154	220 Microhenries
L15	Ratio Det.	10-3-0 ⑪	17-3498	TV-115	6305	
L16	RF Choke	33-246				4.7 Microhenries, IRC Part #CLA

* Parallel with 22K resistor.
① Some versions may use Part #10-29-2, 10-35-2 or 10-690.
② Some versions may use Part #10-9-3 or 10-782.
③ Some versions may use Part #10-10-3 or 10-764.
④ Some versions may use Part #10-28-2, 10-80-2 or 10-879.
⑤ Some versions may use Part #10-769
⑥ Some versions may use Part #10-766
⑦ Some versions may use Part #10-590.
⑧ Some versions may use Part #10-11-0, 10-781, 10-782 or 10-81-1.
⑨ Some versions may use Part #10-871.
⑩ Some versions may use Part #10-803.
⑪ Some versions may use Part #10-26-1, 10-689 or 10-715.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	NOTES
L17	75Ω		10-18-1 *	20-1402	TV-162	6183	205R1	H-100	HS-3	Tap @ 53Ω

* Some versions may use Part #10-690.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K1	Vert. Integrator	2000MMF, 5000MMF, 5000MMF, 22K, 8200Ω, 8200Ω	13-2-0 *	Aerovox PA-501 Centralab PC-104 Erie 1405-01 Sprague 103C12

* Alternate part #17-109.

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA: SILVERTONE PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	NOTES
M1	.230	83-880 ①	1023A ①	1N1007 ②	MR350 ①	6S350 ①	350A ①	
M2	.230	83-880 ②	1023A ①	1N1007 ②	MR350 ①	6S350 ①	350A ①	

① Selenium Type. ② Germanium Type.

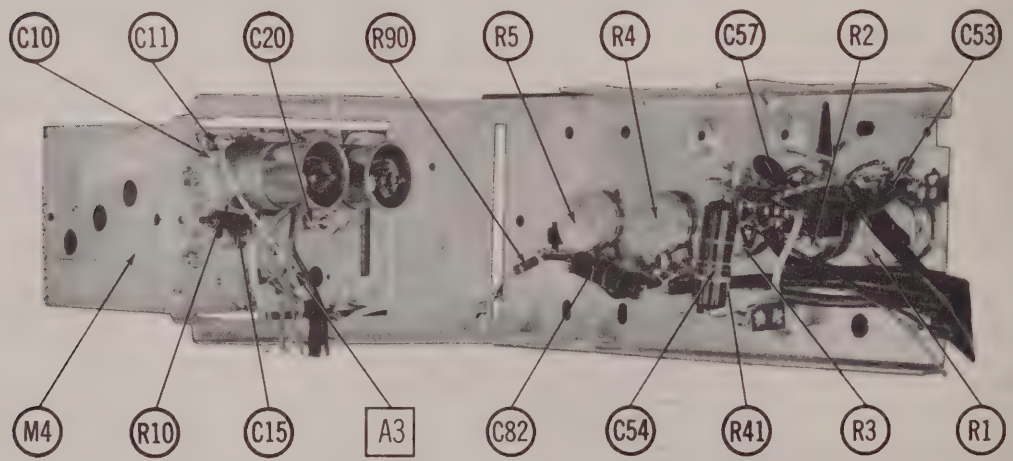
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Pilot Light	89-7	Type #47
M4	Tuner	95-87	Used in Chassis: 528. 52000, 01, 02, 20, 21, 22, 23, 24, 25, 26
	Tuner	95-90	UHF-VHF Includes VHF Tuner Part #95-91 and UHF Tuner Part #95-93 used in Chassis: 528. 52010, 11, 12, 30, 31, 32, 33, 34, 36
M5	Width Sleeve	83-962	
	Width Sleeve	83-1052	
M6	Centering Device	83-936	Includes Yoke Rear Cover
	Centering Device	83-1034	Alternate Part Number, Includes Yoke Rear Cover
M7	Ion Trap	83-830	

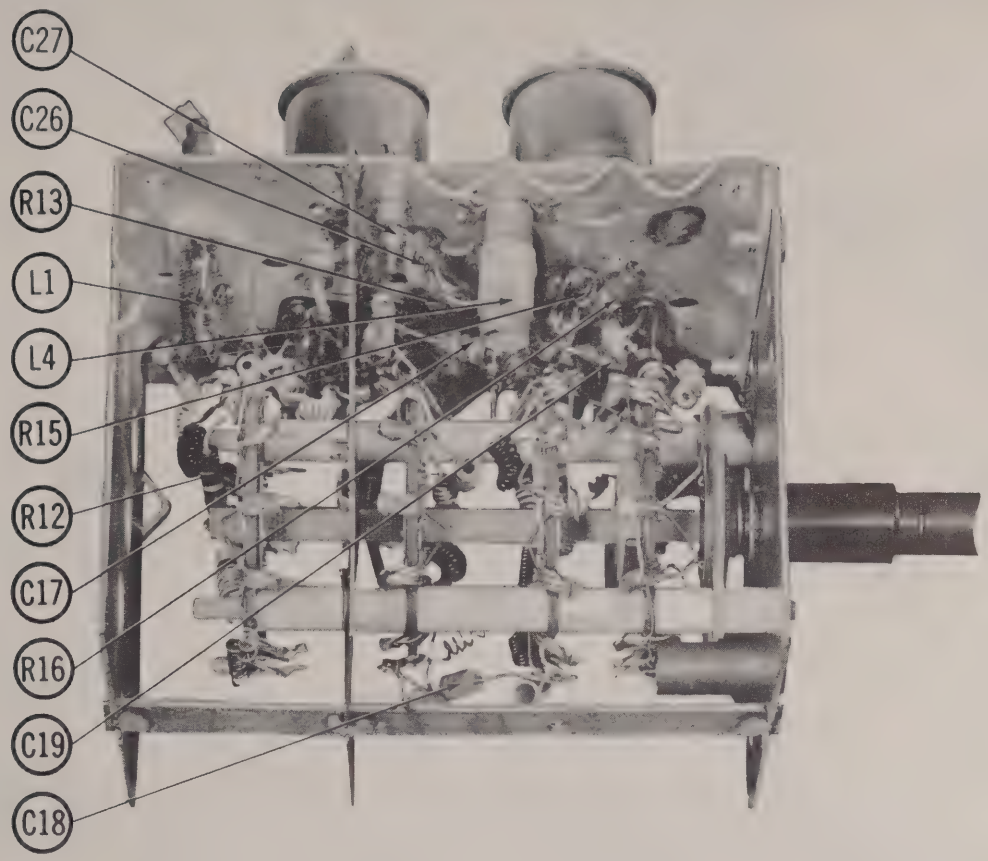
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

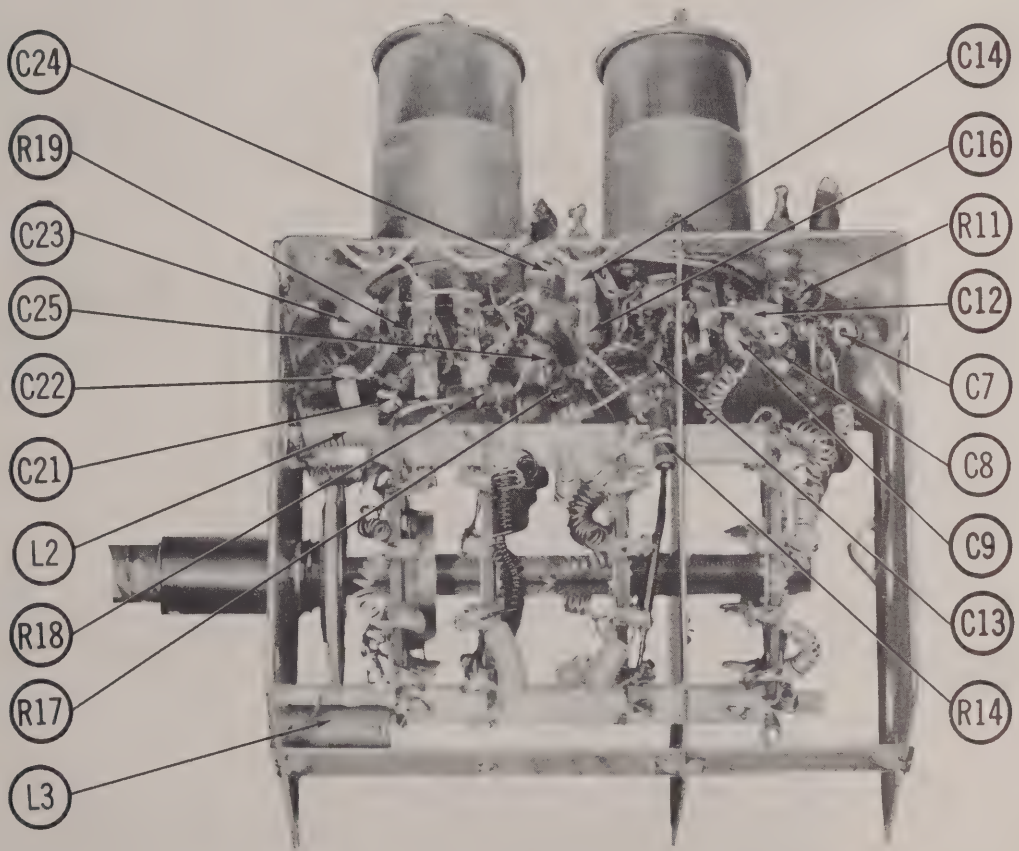
NAME	PART NO.	DESCRIPTION
Safety Glass	48-117	Tinted, 21" Models
Safety Glass	48-118	Tinted, 24" Models
Mask	31-340	21" Models
Mask	31-342	24" Models
Knobs	52-694	Channel Selector (VHF) Models: 7132, 7134, 7174, 7176, 7178
Knobs	52-700	Channel Selector (UHF) Models: 7133, 7135, 7175, 7177, 7179
Knobs	52-697	Channel Selector (VHF) Models: 7133, 7135, 7175, 7177, 7179
Knobs	52-699	UHF Indicator Models: 7133, 7135, 7175, 7177, 7179
Knobs	52-700	Fine Tuning (VHF) Models: 7132, 7134, 7174, 7176, 7178
Knobs	52-701	Fine Tuning (UHF) Models: 7133, 7135, 7175, 7177, 7179
Knobs	52-633	Brightness All Models
Knobs	52-693	Controls (5 used) All Models
Knobs	52-456	On-Off, Start Time (2) Models: 7174, 7175, 7176, 7177, 7178, 7179
Knobs	52-715	Time Set Models: 7174, 7175, 7176, 7177, 7178, 7179
Cabinet	42-819	Mahogany-Model 7132, 7133
Cabinet	42-838	Blonde-Model 7134, 7135
Cabinet	42-836	Mahogany-Model 7174, 7175
Cabinet	42-837	Blonde-Model 7176, 7177
Cabinet	42-859	Maple-Model 7178, 7179



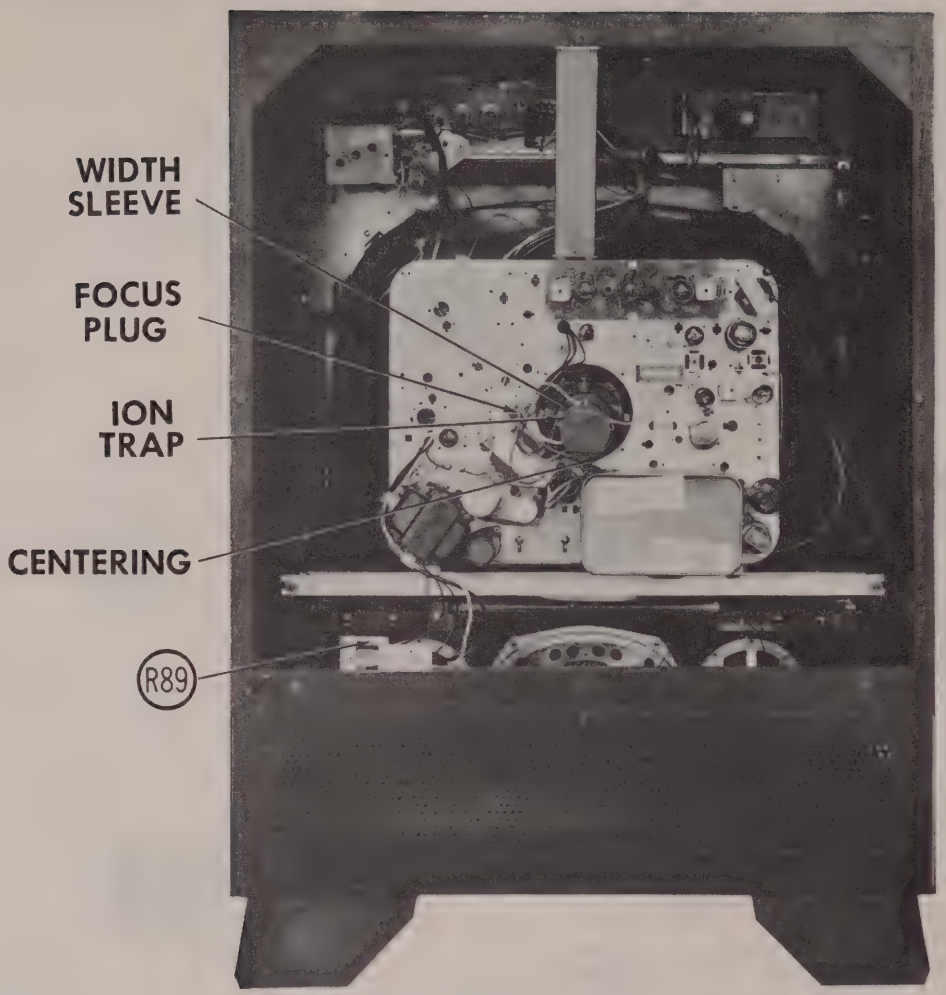
TUNER TOP VIEW & CONTROL PANEL



RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL FREQUENCY ADJUSTMENT FOR SETS CONTAINING A HORIZONTAL RANGE TRIMMER

1. Turn horizontal range trimmer (B3) fully clockwise.
2. Tune in a station and adjust the horizontal hold control until the picture synchronizes horizontally. If the picture cannot be synchronized with the horizontal hold control, set it to the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.
3. If step two is not successful turn the horizontal waveform slug (B2) several turns clockwise (from the rear) out of its original position. Readjust B1 until the picture synchronizes horizontally.

HORIZONTAL FREQUENCY ADJUSTMENT OF SETS WITHOUT A HORIZONTAL RANGE TRIMMER

1. Using a normal signal level set the horizontal hold control fully counter clockwise.
2. Turn the horizontal frequency slug (B1) counter clockwise until the set has complete loss of sync.
3. Turn B1 clockwise until the set just pulls into sync.

HORIZONTAL WAVEFORM ADJUSTMENT

Connect the vertical amplifier of an oscilloscope to terminal "C" of L17. If necessary, adjust the horizontal waveform slug (B2) for waveform similar to Fig. 2 with the sharp peak approximately 10% higher in amplitude than the broad peak. Keep the picture in sync during this adjustment with the horizontal hold control or B1. Remove the scope.

HORIZONTAL RANGE TRIMMER ADJUSTMENT

1. Turn the horizontal hold control fully counter clockwise. Turn the horizontal range trimmer (B3) fully clockwise then back 1/4 turn counter clockwise. Turn B1 counter clockwise until the picture is displaced to the right. Turn B1 clockwise until the picture just locks in sync.
2. Set the horizontal hold control fully clockwise. Momentarily switch off channel and back again; the picture should lose sync. Turn the horizontal hold control slowly counter clockwise and note the number of diagonal bars visible just before the picture falls in sync. If less than two diagonal bars are visible, turn B3 slightly counter clockwise. If more than three diagonal bars are visible, turn B3 slightly clockwise. Repeat steps 1 and 2 if necessary.
3. Normal position of the range trimmer (B3) is 1/4 turn from full clockwise.

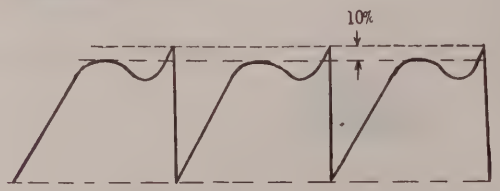


FIG. 2

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SPARTAN
CHASSIS CR-734

SPARTAN
CHASSIS CR-734

TRADE NAME	Spartan Chassis CR-734AA
MANUFACTURER	Spartan Div. The Magnavox Co., Fort Wayne 4, Indiana
TYPE SET	AC Operated AM Receiver With 3 Speed Manual Record Player
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det. -AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles — RATING .28 Amp. @ 117 Volts AC (27 Watts)
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400% Mod)	Point of non-interference	Across voice coil	A1, A2, A3	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2		Loop	1650KC	Tuning gang fully open	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune to 1400KC signal	"	A5	"

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PARTS LIST AND DESCRIPTIONS

SPARTAN
CHASSIS CR-734AA

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SPARTAN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	270557-1	PRS150V40	BBRT44215	TCT3116	TDLT-4	FMT-312	R1110 *
B	40	150		4020				FM-1510	
C	20	150							

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SPARTAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	200			SI 200	D6-201	LT6T2	GP-200	UC-532	5GA-T2	
C3	.05	200	250753-1	BPD-05	DF-503	CUB2S5		GEM-415	4TM-S5	
C4	.1	400	250211-13	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C5	10		250207-3	SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C6	.047	400	250211-11	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C7	10000		250175-33	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C8	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C9	3300		250174-41	BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	5GA-D33	
C10	.047	400	250211-11	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SPARTAN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	220602-1	BT-65	A47F3-500K	Q19-133X	UT-431	Volume, Tap @ 200K
B	Shaft			Not req.	FS-3	Not req.	Not req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2	1Meg	½	220659-2					Tone & Switch

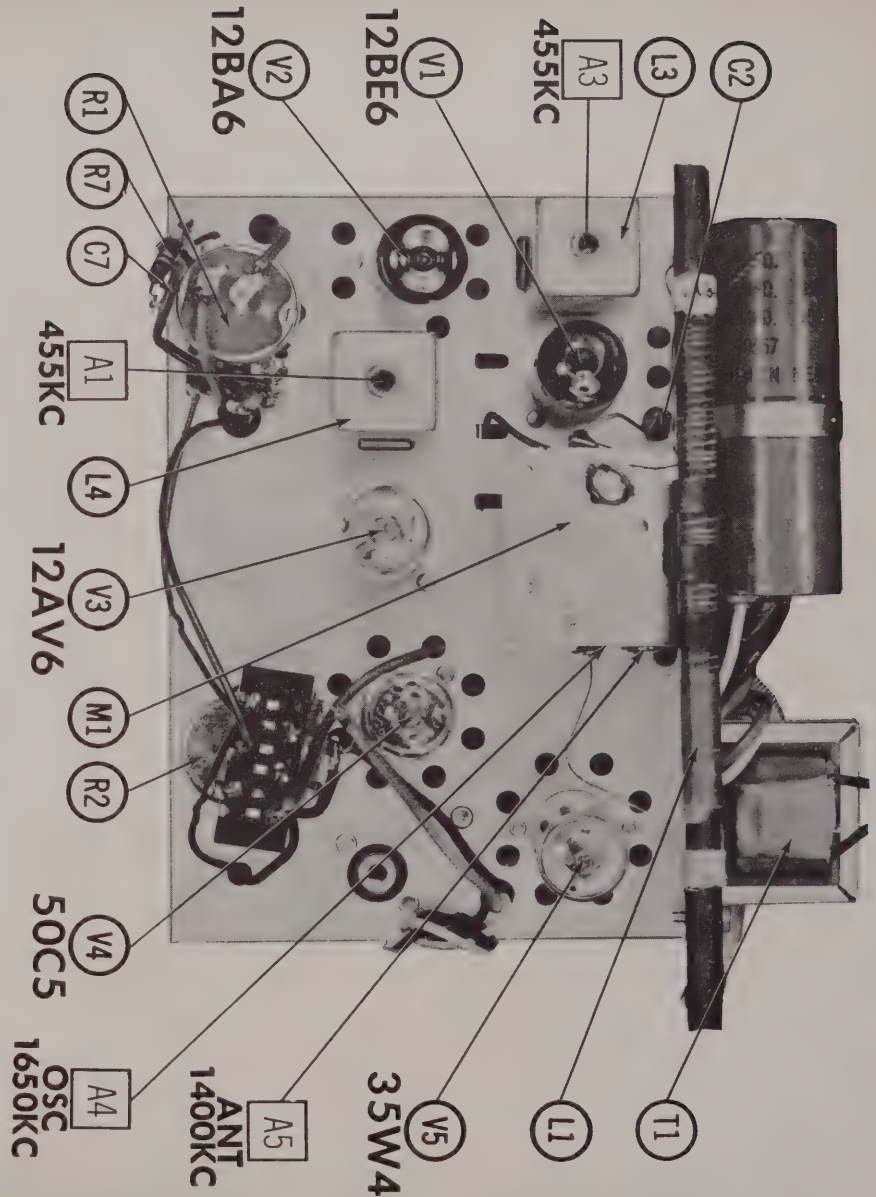
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SPARTAN PART No.	IRC PART No.	
R3	1Meg		230094-31	BTS-1Meg	
R4	68Ω		230104-48	BTS-68	
R5	3.3Meg		230094-34	BTS-3.3Meg	
R6	2.2Meg		230094-33	BTS-2.2Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SPARTAN PART No.	IRC PART No.	
R7	27K		230104-79	BTS-27K	
R8	1200Ω	1	230105-63	BTA-1200	
R9	220Ω	1	230105-54	BTA-220	
R10	150Ω		230104-52	BTS-150	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SPARTAN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3000Ω	3-4Ω	320807-2	Z1101	A-3025	A-3332	22S46 ①	S-12X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SPARTAN PART No.	QUAM PART No.	
SP1	8"	PM	3-4Ω	583688-1	8A21	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SPARTAN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	461509-1				
L2	Osc. Coil	361217-1				
L3	Input IF	361215-1	16-6758	BC-352	12-C1	
L4	Output IF	361216-1	16-6758	BC-353	12-C2	

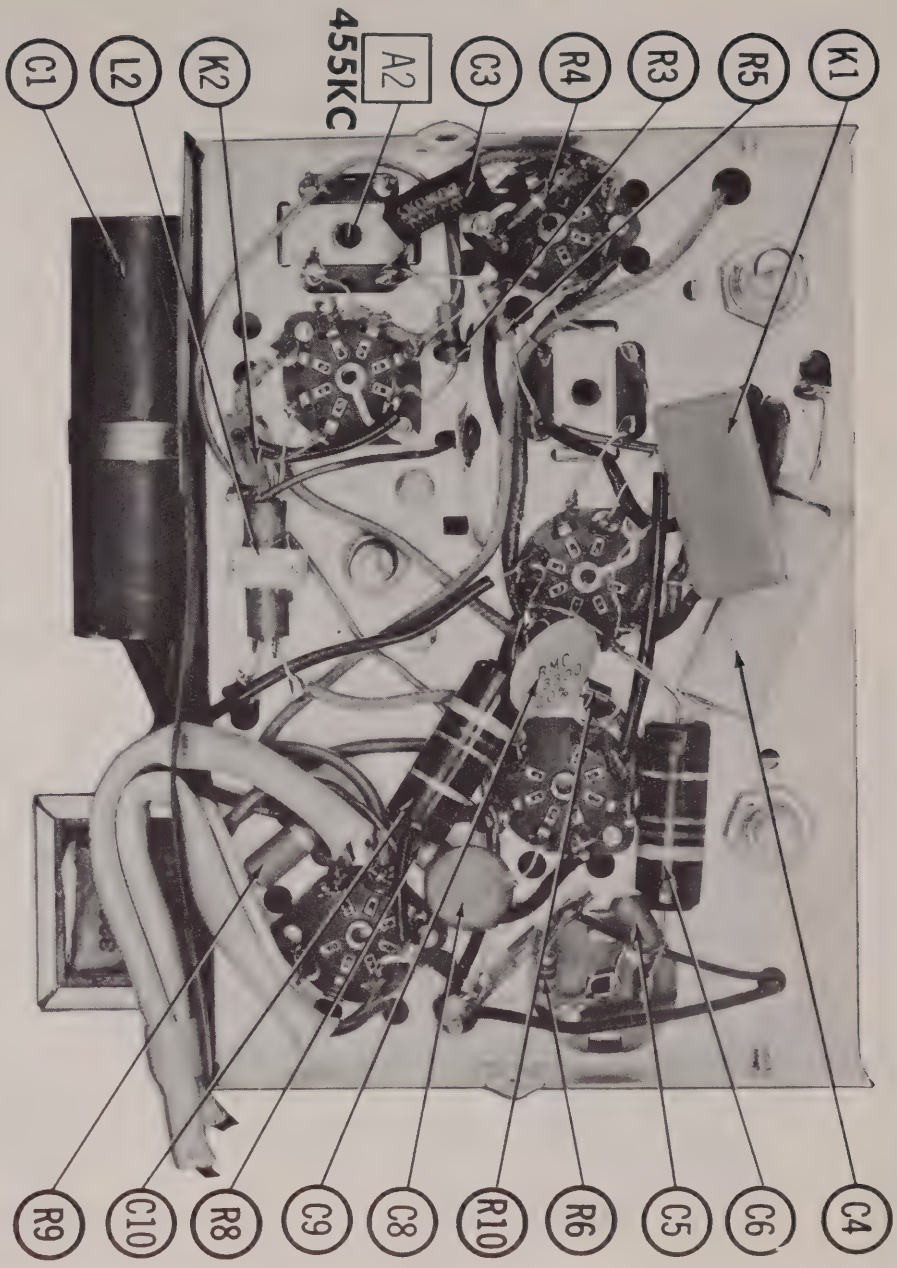
COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SPARTAN PART No.	REPLACEMENT DATA
K1	Det.-Audio Net.	5000MMF, 250MMF, 250MMF, 5000MMF, 470K, 470K, 6.8Meg	250754-1	Aerovox PA-113-2 Centralab PC-151 Cornell-Dubilier 116TM2 Erie 1408-02 Sprague DT-2
K2	Osc. Grid Plate	30MMF, 22K	250186-5	

MISCELLANEOUS

ITEM No.	PART NAME	SPARTAN PART No.	NOTES
M1	Tuning gang	260603-1	2 Gang (13-235MMF, 14-101MMF)
	Knob	140770-1	Control (Turquoise Cabinet)
	Knob	140770-2	Control (Coral Cabinet)
	Knob	140770-3	Control (Grey, Tan & Green Cabinet)
	Knob	140770-4	Tuning (Turquoise Cabinet)
	Knob	140770-5	Tuning (Coral Cabinet)
	Knob	140770-6	Tuning (Grey, Tan & Green Cabinet)

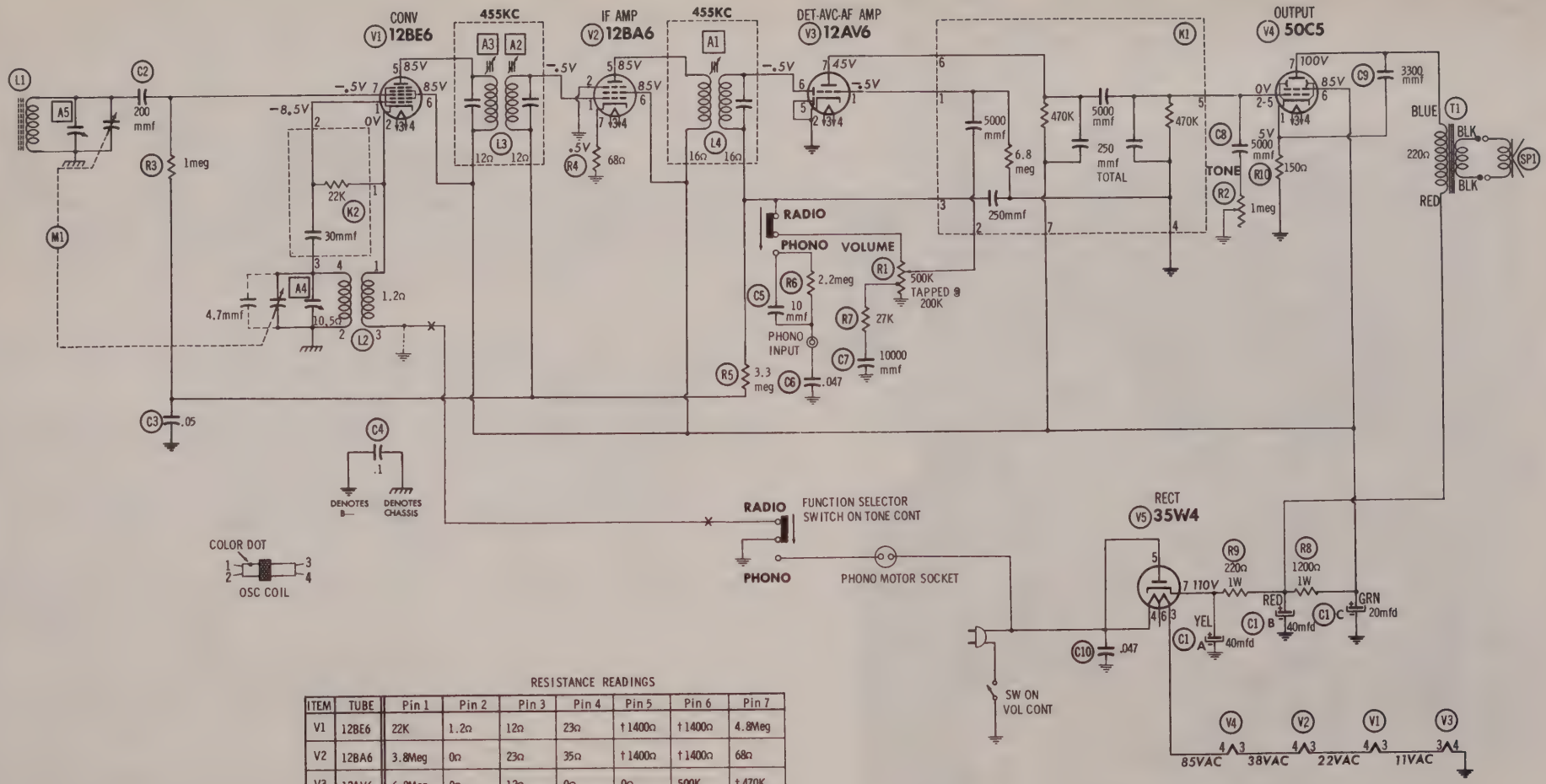
CHASSIS—BOTTOM VIEW



SPARTAN CHASSIS CR-734AA

SET 370 FOLDER 13

SPARTAN CHASSIS CR-734AA



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	1.2Ω	12Ω	23Ω	†1400Ω	†1400Ω	4.8Meg
V2	12BA6	3.8Meg	0Ω	23Ω	35Ω	†1400Ω	†1400Ω	68Ω
V3	12AV6	6.8Meg	0Ω	12Ω	0Ω	0Ω	500K	†470K
V4	50C5	150Ω	470K	35Ω	84Ω	470K	†1400Ω	†440Ω
V5	35W4	TP	TP	84Ω	117Ω	117Ω	110Ω	20K(Min)

† MEASURED FROM PIN 7 OF V5
TP TIE POINT
NC NO CONNECTION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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TRUETONE MODELS D2850A, D2852A, D2853A, D2854A, D2855A, DC2850A, DC2852A, DC2853A, DC2854A, DC2855A

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TRUETONE MODELS D2850A, D2852A, D2853A, D2854A, D2855A, DC2850A, DC2852A, DC2853A, DC2854A, DC2855A

TRUETONE MODELS D2850A, D2852A, D2853A, D2854A, D2855A, DC2850A, DC2852A, DC2853A, DC2854A, DC2855A

TRADE NAME	Truetone Models D2850A, D2852A, D2853A, D2854A, D2855A, DC2850A, DC2852A, DC2853A, DC2854A, DC2855A
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Missouri
TYPE SET	AC-DC Operated AM Receiver (Models D2850A, D2852A, DC2850A, DC2852A Are Clock Models)
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 (or) 12AT6 Det. -AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .28 Amp. @ 117 Volts AC (27 Watts)
TUNING RANGE—BROADCAST	540KC-1640KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to antenna stator lug on tuning gang. Low side to B-.	455KC (400%Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1640KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amp.	12AV6	Note #1

ITEM No.	USE	TYPE	NOTES
V4	Out put	50C5	
V5	Rectifier	35W4	

Note 1. Models D2850A, D2852A, DC2850A, DC2852A may use type 12AT6

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	150	E3214	PRS150V3050	BBRD5315	TCD497	TDLD-8	FMD-301	TVA-2450
B	30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.05	400	E306	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C3	10000		E301	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C4	.05	400	E306	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C5	.05	400	E306	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	E2518 ①	B-60	A47-500K-Z	Q13-133	U48	Volume ①
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

① Clock versions use Part #E2521 (without switch)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRUETONE PART No.	IRC PART No.	
R2	22K			BTS-22K	
R3	3.3Meg			BTS-3.3Meg	
R4	180Ω			BTS-180	Note 1

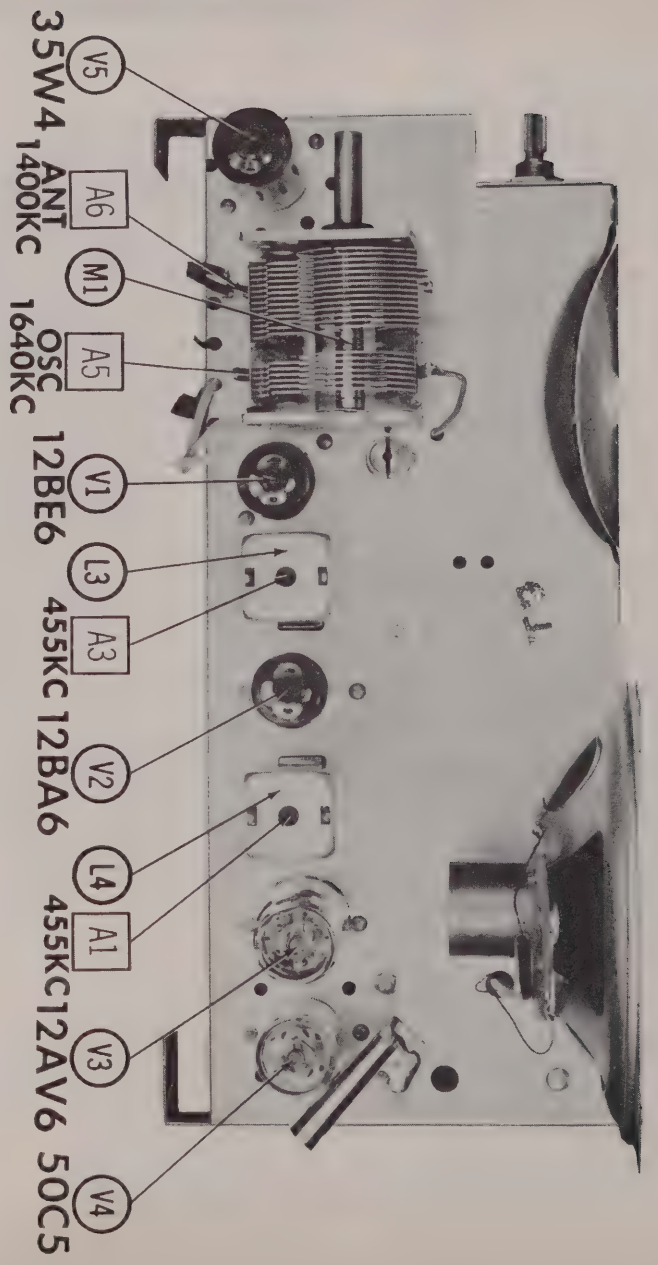
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRUETONE PART No.	IRC PART No.	
R5	150Ω			BTS-150	
R6	1500Ω	1		BTA-1500	

Note 1. Some versions may use 150Ω

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2700Ω	3-4Ω	E1113	Z1101	A-3025	A-3332	26S58 ②	S-12X	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	E1014	4A07	① Alternate part number
	4"	PM		E1017 ①		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	E6016 ①				
L2	Osc. Coil	E6127X			69-OSC *	* Drill new mounting hole
L3	Input IF	E6256	16-6758	BC-352	12-C1	
L4	Output IF	E6256	16-6758	BC-353	12-C2	

① Clock models use Part #E6021

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRUETONE PART No.	REPLACEMENT DATA	
K1	Det.-Audio Net.	5000MMF, 2000MMF, 250MMF, 220MMF, 6.8Meg, 470K, 470K	E3015	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA-113-1 PC-150 116TM1 1408-01 DT-5

MISCELLANEOUS

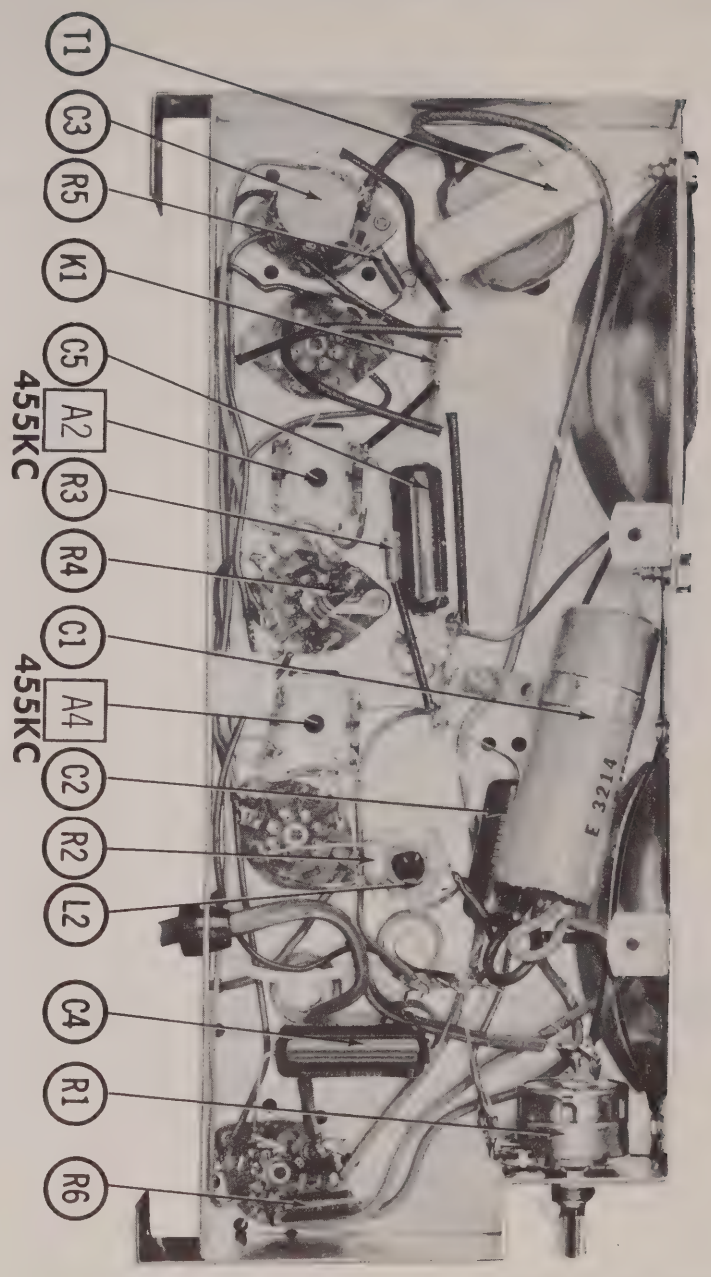
ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M1	Tuning Cap.	E3518	2 Gang (22-385MMF, 20-130MMF)

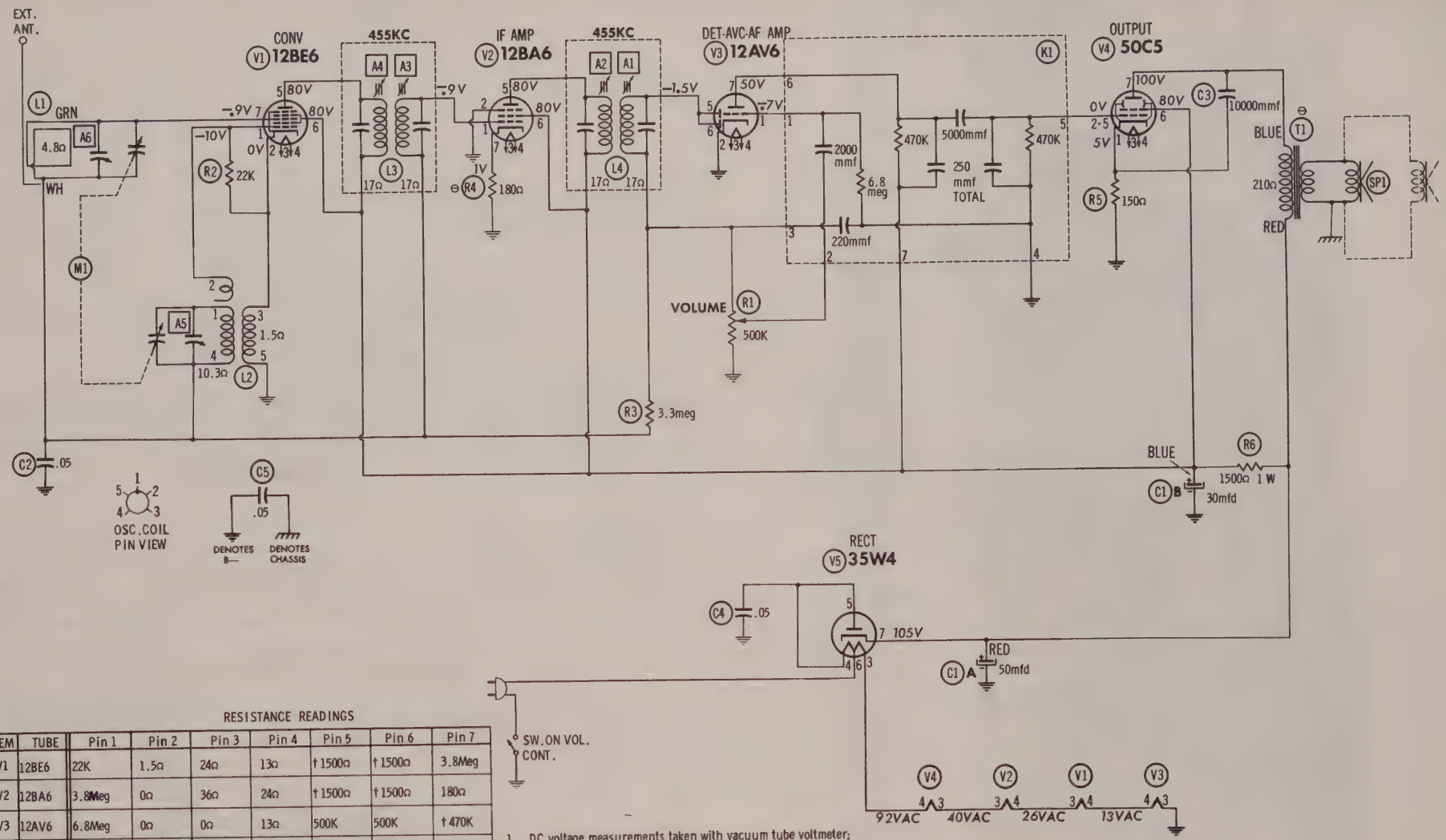
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	E5059	Tuning (Specify Color)
Knob	E5061	Volume (Specify Color)
Cabinet	E7035	(Specify Color)
Cabinet	E7036	(Specify Color) Clock Models
Knob	E5064	Timer
Clock	E137	

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	1.5Ω	24Ω	13Ω	†1500Ω	†1500Ω	3.8Meg
V2	12BA6	3.8Meg	0Ω	36Ω	24Ω	†1500Ω	†1500Ω	180Ω
V3	12AV6	6.8Meg	0Ω	0Ω	13Ω	500K	500K	†470K
V4	50C5	150Ω	470K	36Ω	80Ω	470K	†1500Ω	†210Ω
V5	35W4	NC	NC	80Ω	120Ω	120Ω	110Ω	50K

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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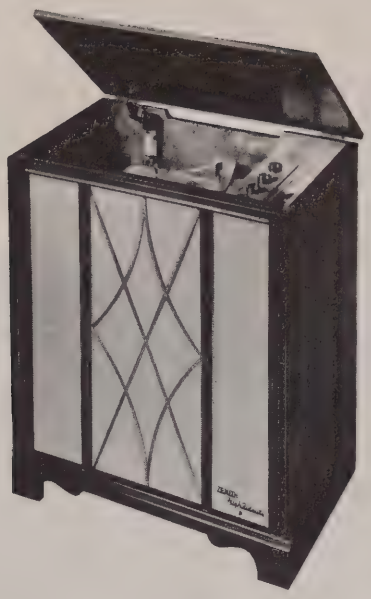


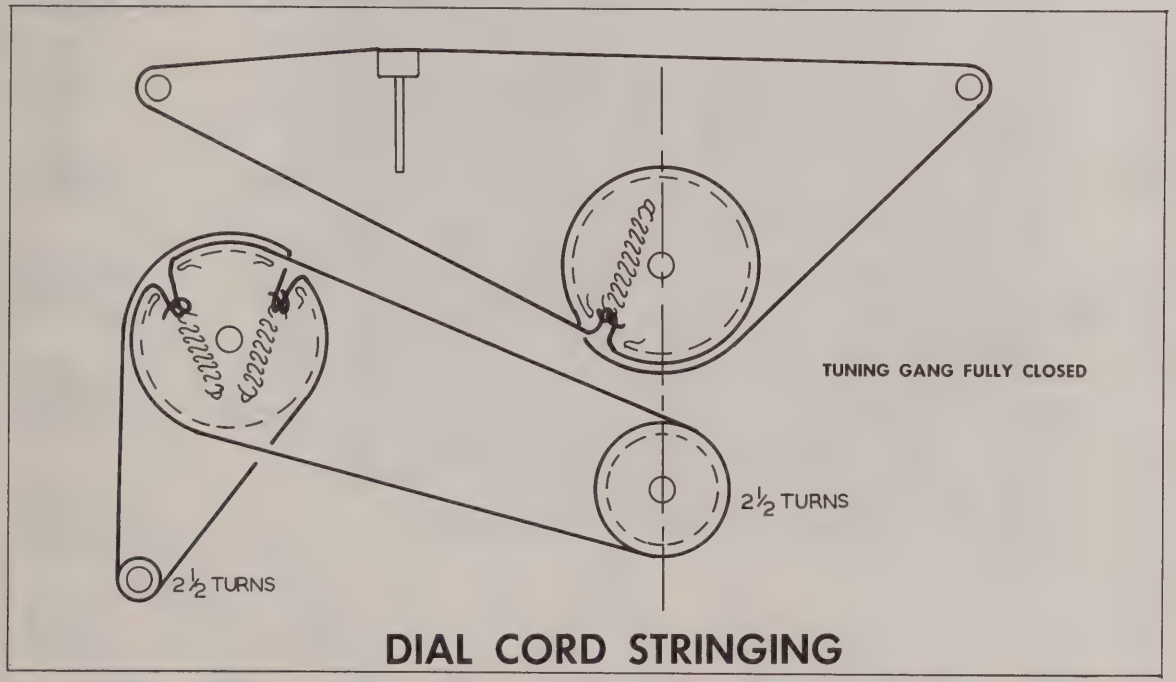
PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

ZENITH MODELS HF1180R, HF1182E, HF1284, E (Ch. 11Z20, 12Z20)

ZENITH MODELS HF1180R, HF1182E, HF1284, E (Ch. 11Z20, 12Z20)

TRADE NAME	Zenith Models HF1180R, HF1182E (Ch. 11Z20), HF1284, HF1284E (Ch. 12Z20)		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois		
TYPE SET	AC Operated FM-AM Receiver With 4 Speed Automatic Record Changer		
TUBES	Eleven		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	1 Amp. @ 117 Volts AC (110 Watts Without Motor)
TUNING RANGE - BROADCAST	540KC-1620KC	FREQ. MOD.	88MC-108MC

FOR SERVICE INFORMATION ON RECORD CHANGER, ZENITH PART #S 14073, USED IN MODELS HF1180R AND HF1182E--SEE SIMILAR V-M MODEL 1200A--PHOTOFACT SET 363 FOLDER 16. MODELS HF1284 AND HF1284E USE ZENITH "COBRAMATIC" RECORD CHANGER S-14067.



DIAL CORD STRINGING

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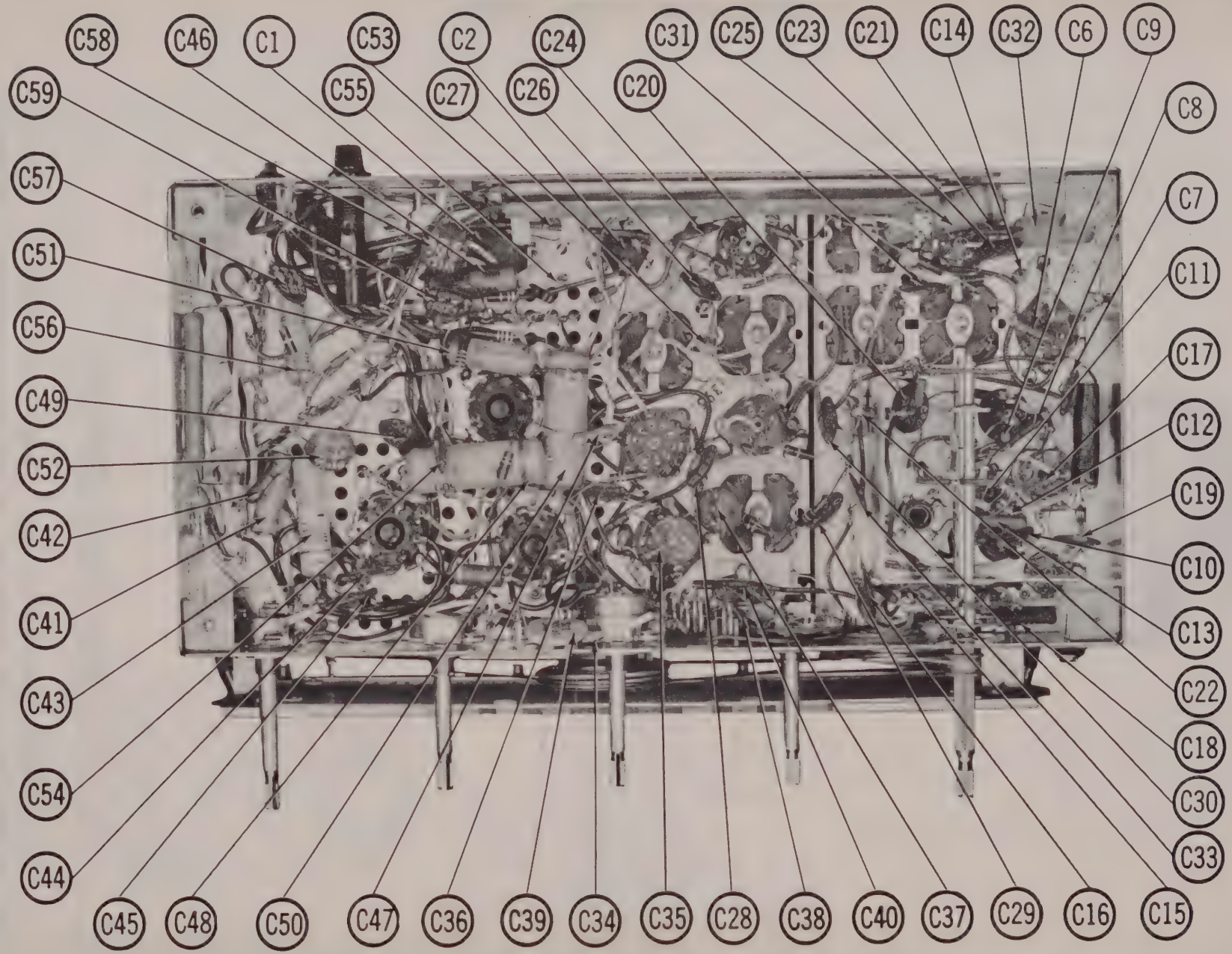
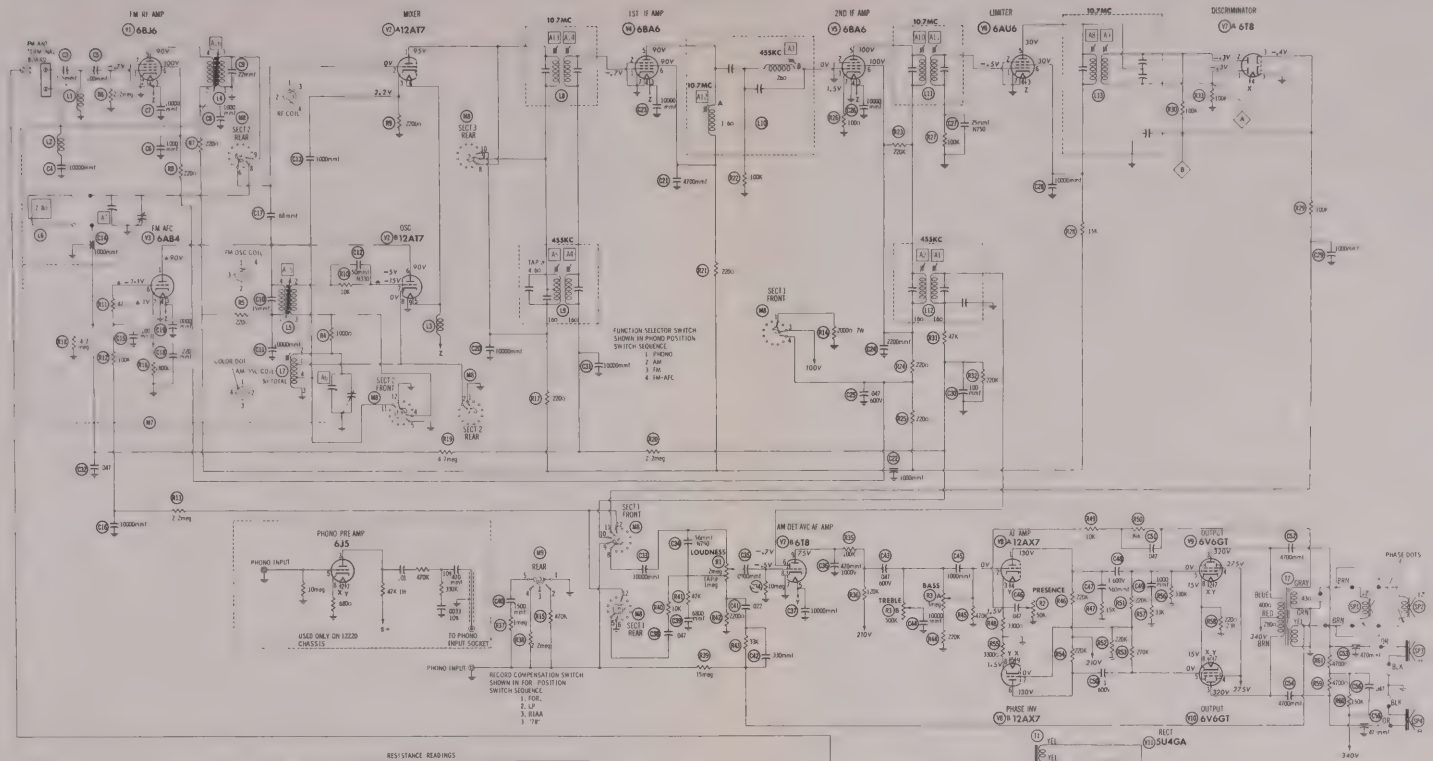


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BJ6	2.2Meg	0Ω	.3Ω	0Ω	1 4900Ω	1 4700Ω	0Ω		
V2	12AT7	1 4900Ω	1Ω @ 3meg	2200Ω	.3Ω	.3Ω	1 4900Ω	80K @ 11K	2Ω	0Ω
V3	6AB4	1 4900Ω	NC	.3Ω	0Ω	NC	≥2.2Meg	18000Ω		
V4	6BA6	2 4Meg	0Ω	3Ω	0Ω	1 4900Ω	1 4900Ω	0Ω		
V5	6BA6	100K	0Ω	3Ω	0Ω	1 4700Ω	1 4700Ω	100Ω		
V6	6AU6	100K	0Ω	3Ω	0Ω	1 19K	1 19K	0Ω		
V7	6T8	100K	100K	200K	3Ω	3Ω	265K	0Ω	10Meg	1 220K
V8	12AX7	1 220K	470K	1300Ω	3Ω	3Ω	1 220K	220K	1300Ω	3Ω
V9	6V6GT	NC	3Ω	1 530Ω	1 1000Ω	330K	TP	3Ω	220Ω	
V10	6V6GT	NC	3Ω	1 400Ω	1 1000Ω	490K	NC	3Ω	220Ω	
V11	5U4G	NC	20K(Min)	TP	45Ω	NC	45Ω	TP	20K(Min)	

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

● SEE PARTS LIST FOR ALTERNATE VALUE ON APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements.

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
! MEASURED FROM PIN 8 OF V11
= MEASURED IN "AM" POSITION
▲ MEASURED IN "FM-AFC" POSITION
TP TIE POINT
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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370-15

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

ZENITH
MODEL HF1180R (Ch. H1220)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.05MFD	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	455KC (400~Mod.)	AM	600KC	Across voice coil	A1, A2, A3, A4, A5	Adjust for maximum output.
2	"	High side to AM Antenna terminal. Low side to chassis	1600KC	"	1600KC	"	A6	"
3	"	"	1400KC	"	1400KC	"	A7	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Use 2Meg resistor in series with high side of signal generator.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4	.05MFD	High side to pin 1 (grid) of 6AU6 (V6). Low side to chassis.	10.7MC (unmod.)	FM (AFC Off)	Point of non-interference	DC probe to point (A). Common to chassis.	A8	Adjust for maximum deflection.
5	"	"	"	"	"	DC probe to point (B). Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
6	"	High side to pin 1 (grid) of 6BA6 (V5). Low side to chassis	"	"	"	DC probe to pin 1 (grid) of 6AU6 (V6) Common to chassis.	A10, A11	Adjust for maximum deflection.
7	"	High side to pin 1 (grid) of 6BA6 (V4). Low side to chassis.	"	"	"	"	A12	"
8	"	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A13, A14	Adjust for maximum deflection. Repeat steps 6, 7 & 8.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4	.05MFD	High side to pin 1 (grid) of 6AU6 (V6). Low side to chassis.	10.7MC (450KC Swp)	FM (AFC Off)	Point of non-interference	Vert Amplifier to point (A). Low side to chassis.	A8	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5	"	"	"	"	"	Vert Amplifier to point (B). Low side to chassis.	A9	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.
6	"	High side to pin 1 (grid) of 6BA6 (V5). Low side to chassis.	"	"	"	Vert Amplifier to pin 1 (grid) of 6AU6 (V6). Low side to chassis.	A10, A11	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
7	"	High side to pin 1 (grid) of 6BA6 (V4). Low side to chassis.	"	"	"	"	A12	"
8	"	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis	"	"	"	"	A13, A14	"

FM RF ALIGNMENT

Disconnect line antenna. Use 2Meg resistor in series with high side of signal generator.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9	270Ω Carbon Resistor	High side to FM Antenna terminal. Low side to chassis.	98MC (unmod.)	FM	98MC	DC probe to pin 1 (grid) of 6AU6 (V6) Common to chassis.	A15, A16	Adjust for maximum deflection in order given.

FIG. 1

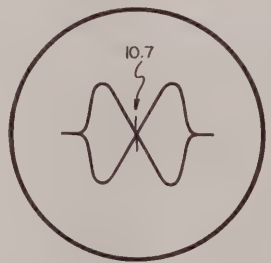
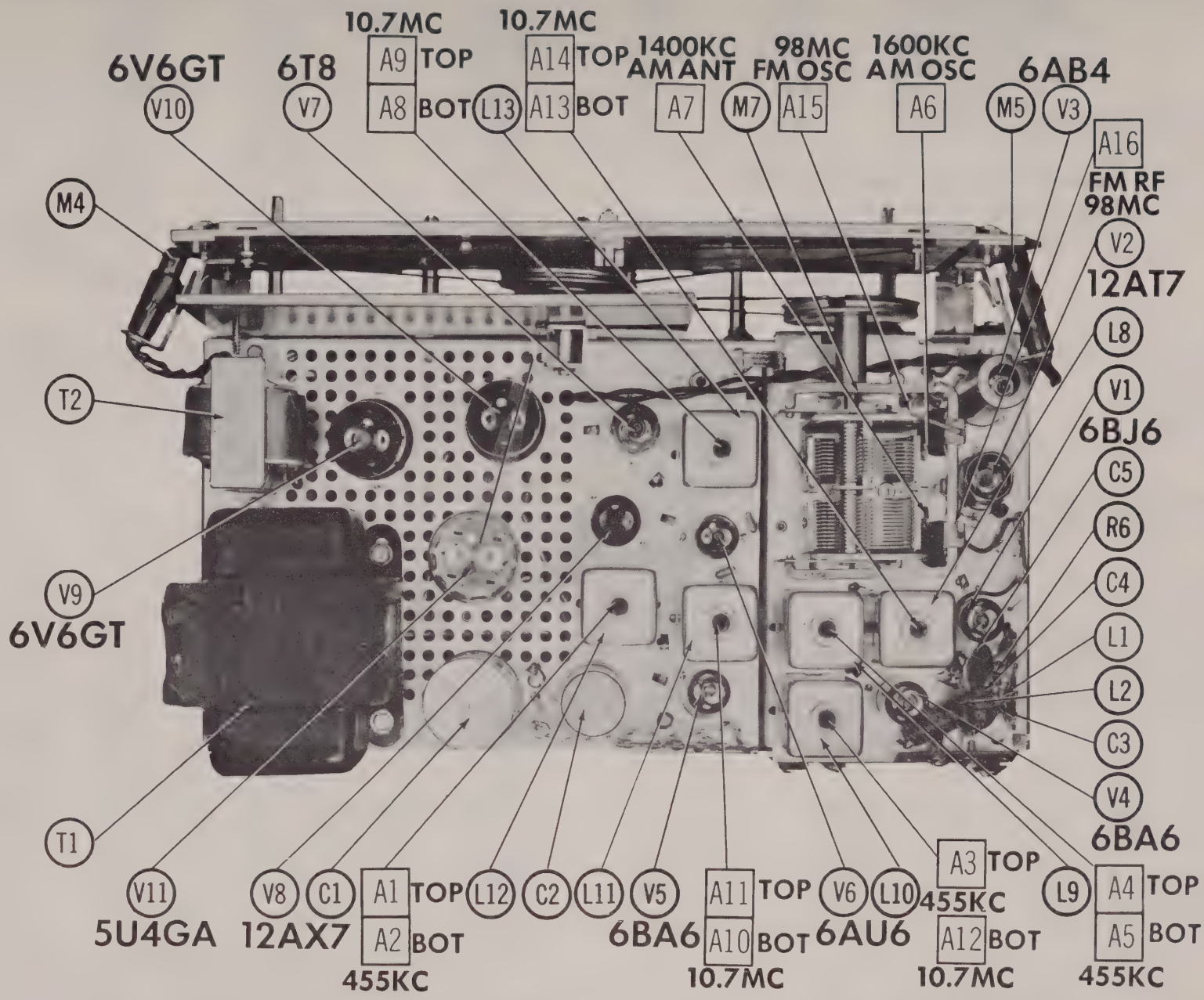
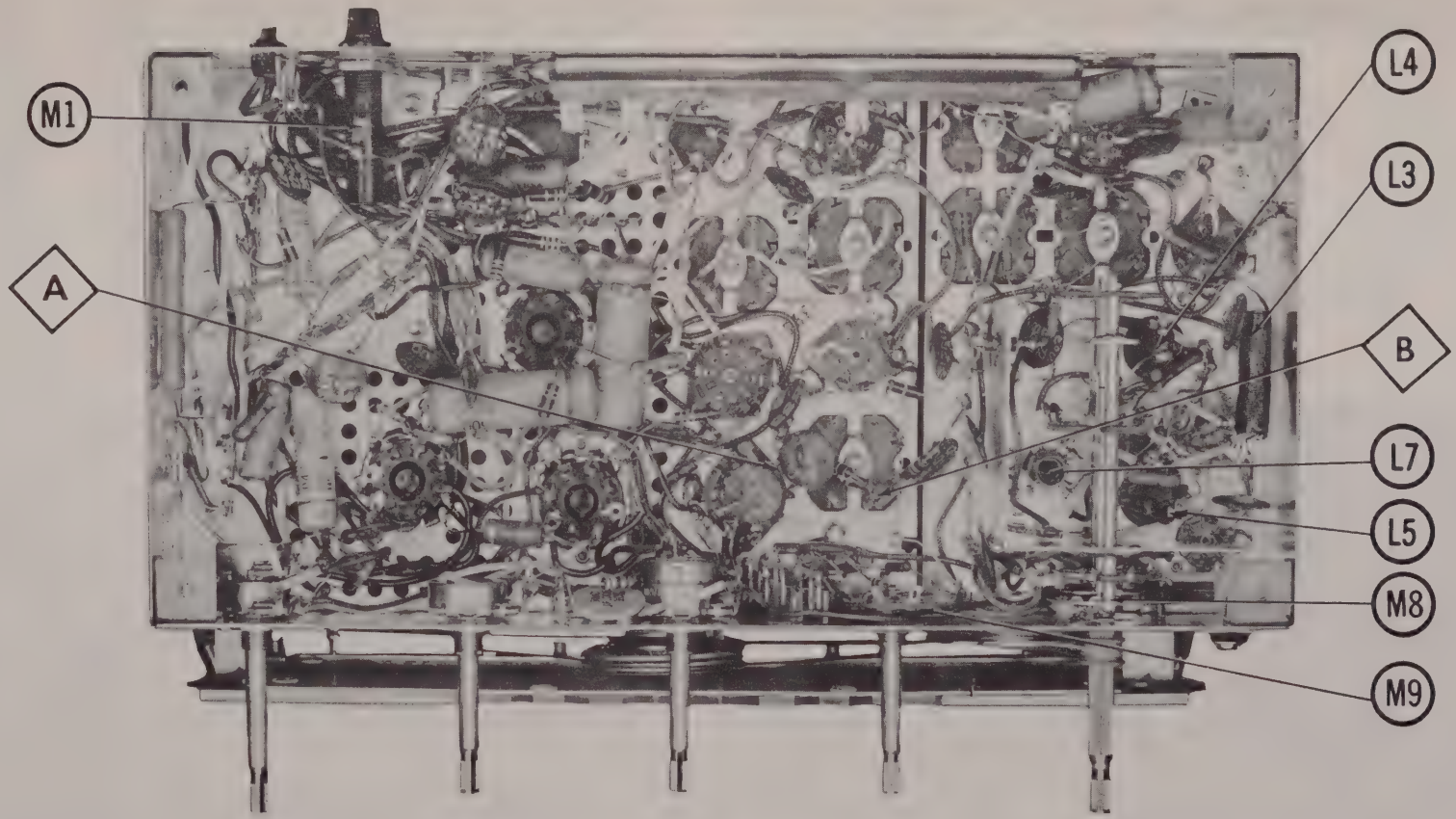


FIG. 2



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW- INDUCTOR AND ALIGNMENT IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6BJ6	
V2	Mixer-Oscillator	12AT7	
V3	FM AFC	6AB4	
V4	1st. IF Amplifier	6BA6	
V5	2nd. IF Amplifier	6BA6	
V6	Limiter	6AU6	

ITEM No.	USE	TYPE	NOTES
V7	Disc. -AM Det. -AVC- 1st. AF Amplifier	6T8	
V8	2nd. AF Amp. -Phase Inv.	12AX7	
V9	Output	6V6GT	
V10	Output	6V6GT	
V11	Rectifier	5U4GA	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	450	22-1612	AFH2-57	B0450	FP238	TMD-54	D-235	TVL-2764
B	▲40	450							
C2A	■20	350	22-2905	AFH2-37	B0300	FP227	TMD-35	D-160	TVL-2626
B	▲20	350							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	7.5		22-1852							
C4	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C5	100		22-5	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C6	1000		22-1676	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C7	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C8	1000		22-1676	SI 1000	D6-102	LT6D1	GP-1000	DC521	5HK-D1	
C9	22		22-1506	SI 22	D6-220	LT6Q22	GP-22	UC-5422	5GA-Q22	
C10	19		22-2630							
C11	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C12	50		22-1367							N330
C13	1000		22-1676	SI 1000	D6-102	LT6D1	GP-1000	DC521	5HK-D1	
C14	1000		22-2732	EF-001	MFT-1000				503C-D1	
C15	100		22-5	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C16	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C17	.68		22-1766		TCZ-R68		TC0-.68			
C18	220		22-2321	SI 220	D6-221	LT6T22	GP-220	UC-5322	5GA-T22	
C19	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C20	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C21	4700		22-14	BPD-0047	DD-472	BYA10D47	ED-0047	DC5247	5GA-D47	
C22	1000		22-2732	EF-001	MFT-1000				503C-D1	
C23	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C24	2200		22-18	BPD-0022	DD-222	BYA10D22	ED-0022	DC5222	5GA-D22	
C25	.047	600	22-2797	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C26	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R38	2.2Meg			BTS-2.2Meg	
R39	15Meg			BTS-15Meg	
R40	10K			BTS-10K	
R41	47K			BTS-47K	
R42	2200Ω			BTS-2200	
R43	33K			BTS-33K	
R44	220K			BTS-220K	
R45	470K			BTS-470K	
R46	220K			BTS-220K	
R47	15K			BTS-15K	
R48	3300Ω			BTS-3300	
R49	10K			BTS-10K	
R50	39K			BTS-39K	
R51	220K			BTS-220K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R52	220K			BTS-220K	
R53	270K			BTS-270K	
R54	220K			BTS-220K	
R55	3300Ω			BTS-3300	
R56	330K			BTS-330K	
R57	33K			BTS-33K	
R58	220Ω	2	63-3231	BTB-220	
R59	4700Ω			BTS-4700	
R60	150K			BTS-150K	
R61	4700Ω			BTS-4700	
R62A	2200Ω	8			
B	1200Ω	5	63-3692		
C	1000Ω	5			
D	120Ω	3			

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ② 1A	680VCT ② .140A	5VAC ② 3A	6.3VCT ② 2A SEC. 4 6.3VAC ② 1.36A	95-1538					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.1	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	8000Ω CT	3-4Ω	95-1539						
	Turns Ratio								
	PRI.	SEC.2							
	10.3:	1							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	12"	PM	6-8Ω	49-802 ①	12A6 ①	① Connect in parallel & phase.
SP2	12"	PM	6-8Ω	49-802 ①	12A6 ①	② Electrostatic type. Alternate Part #S-23829
SP3				S-24510 ②		
SP4				S-24510 ②		

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C27	25		22-2373	N750-SI 25	TCN-25	C10Q25U	TC7-25		5TCU-Q25	N750
C28	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	
C29	1000		22-17	BPD-001	DD-102	BYA6DI	ED-1000	DC521	5HK-DI	
C30	100		22-5	BPD-0001	DD-101	L10T1	ED-100	UC-531	5HK-TI	
C31	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	
C32	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C33	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	
C34	56		22-2927	N750-SI 56	TCN-56	C10Q56U	TC7-56			N750
C35	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	
C36	470	1000	22-16	HVD-15-470	DD30-471	BYA10T47	HDI5-470	DC30347	10GAB-T47	
C37	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	
C38	.047	200	22-2795	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C39	6800		22-2819	BPD-0068	DD-682	BYA10D68	ED-0068	UC-5268	5GA-D68	
C40	1500		22-12	BPD-0015	DD-152	BYA10DI5	ED-0015	DC5215	5HK-DI5	
C41	.022	200	22-2807	BPD-02	DD-203	CUB2S22	ED-02	GEM-2122	2TM-S22	
C42	330		22-2309	SI 330	D6-331	LT6T33	GP-330	UC-5333	5GA-T33	
C43	.047	600	22-2797	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C44	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	
C45	1000		22-17	BPD-001	DD-102	BYA6DI	ED-1000	DC521	5HK-DI	
C46	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C47	560		22-2310	SI 560	D6-561	LT6T56	GP-560	UC-5356	5GA-T56	
C48	.1	600	22-2782	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C49	1000		22-17	BPD-001	DD-102	BYA6DI	ED-1000	DC521	5HK-DI	
C50	.1	600	22-2782	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C51	.047	200	22-2795	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C52	4700		22-14	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C53	470		22-2900							
C54	4700		22-14	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C55	470		22-2900							
C56	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C57A	4700		22-24	BPD-2X0047	DD2-502	BYC6DD47	ED-0047	UC-5247	5HK-2D47	
B	4700						ED-0047	UC-5247		
C58A	4700		22-24	BPD-2X0047	DD2-502	BYC6DD47	ED-0047	UC-5247	5HK-2D47	
B	4700						ED-0047	UC-5247		
C59	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2Meg	½	63-3682	BT-82	A47F3-2Meg	Q18-139X	UT-451	Loudness, Tap @ 1Meg
B	Shaft			Not req.	KSS-3	Not req.	Not req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2	50K	½	63-3683	B-34		Q14-123	U34	Presence
R3A	3Meg	½	63-3681					Bass
B	500K	½						Treble

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R4	1000Ω			BTS-1000	
R5	220Ω			BTS-220	
R6	2.2Meg			BTS-2.2Meg	
R7	220Ω			BTS-220	
R8	220Ω			BTS-220	
R9	2200Ω			BTS-2200	
R10	10K			BTS-10K	
R11	47Ω			BTS-47	
R12	100K			BTS-100K	
R13	2.2Meg			BTS-2.2Meg	
R14	2000Ω	7	63-3694	PW7-2000	
R15	470K			BTS-470K	
R16	1800Ω			BTS-1800	
R17	220Ω			BTS-220	
R18	4.7Meg			BTS-4.7Meg	
R19	4.7Meg			BTS-4.7Meg	
R20	2.2Meg			BTS-2.2Meg	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R21	220Ω			BTS-220Ω	
R22	100K			BTS-100K	
R23	220K			BTS-220K	
R24	220Ω			BTS-220	
R25	220Ω			BTS-220	
R26	100Ω			BTS-100	
R27	100K			BTS-100K	
R28	15K			BTS-15K	
R29	100K			BTS-100K	
R30	100K			BTS-100K	
R31	47K			BTS-47K	
R32	220K			BTS-220K	
R33	100K			BTS-100K	
R34	10Meg			BTS-10Meg	
R35	100K			BTS-100K	
R36	120K			BTS-120K	
R37	1Meg			BTS-1Meg	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Antenna Coil	20-682	19-1000	BC-561	4602	1.1 Microhenry
L2	RF Choke	20-337	19-1003	BC-537	4608	4.2 Microhenries
L3	Fil. Choke	20-337	19-1003	BC-537	4608	4.2 Microhenries
L4	FM RF Coil	S-15743				
L5	FM Osc. Coil	S-15691				
L6	Loop Antenna	S-40795				
L7	AM Osc. Coil	S-22914				
L8	1st. FM IF	95-1150	16-3487 *	FM-251	1451	* Use adapter plate
L9	1st. AM IF	95-1250	16-6666	BC-368	12-C1 *	* Use adapter plate
L10A	2nd. FM IF	95-1251				
B	2nd. AM IF					
L11	3rd. FM IF	95-1150	16-3487 *	FM-251	1451	* Use adapter plate
L12	3rd. AM IF	95-1102	16-6770 *	BC-355 *	12-C6 *	* Use adapter plate
L13	Discriminator	95-1153				

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA ZENITH PART No. FUSE	ZENITH PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	2 Amp 250V	136-36		312002. (3AG 2A)	342001	AGC2	HKP

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA ZENITH PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M2	142-80	87-T		56	* PT-1	Models HF-1180R, HF-1182E * Not needed unless original is damaged
	142-77					Models HF-1284, HF-1284E

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA ZENITH PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M3				

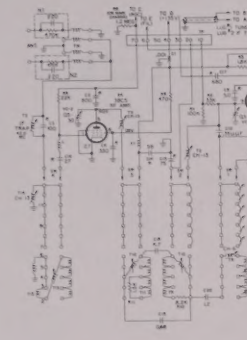
MISCELLANEOUS

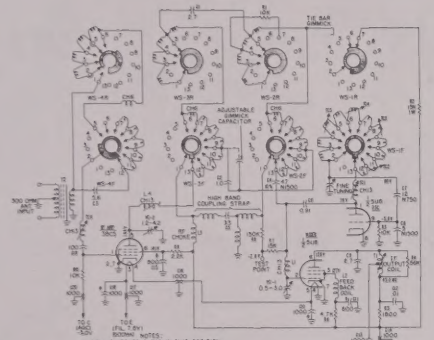
ITEM No.	PART NAME	ZENITH PART No.	NOTES
M4	Dial Light	100-67	#47
M5	Dial Light	100-67	#47
M6	Dial Light	100-189	#1891
M7	Tuning Cap	22-2925	2 Gang (Ant. 20-490MMF, Osc. 20-195MMF)
M8	Switch	85-583	Function, Rotary Wafer Type
M9	Switch	85-581	Record Compensator, Rotary Wafer Type

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	46-1020	Function, Record Compensator, ON-OFF-Loudness, Presence Model HF1180R
Knob	46-1357	Function, Record Compensator, ON-OFF-Loudness, Presence Models HF1182E, HF1284, E
Knob	46-1639	Tuning All Models
Knob	46-1640	Bass Models HF1180R, HF1182E
Knob	46-1686	Bass Models H1284, E
Knob	46-1641	Treble Model HF1180R
Knob	46-1642	Treble Models HF1182E, HF1284, E
Cabinet	14-2124R	Combination Model HF1180R
Cabinet	14-2125E	Combination Model HF1182E
Cabinet	14-2122	Combination Model HF1284
Cabinet	14-2122E	Combination Model HF1284E

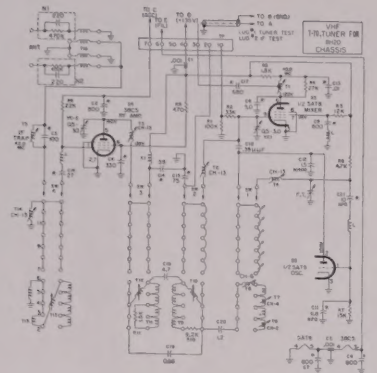


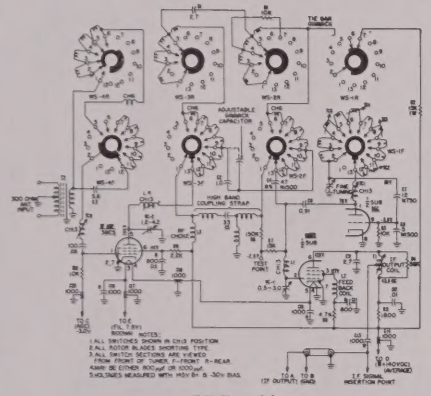


T-71 Tuner Schematic

PHILCO CHASSIS
8E11
8E11U
8E13

SCHEMATIC COURTESY OF PHILCO CORPORATION





T-71 Tuner Schematic

PHILCO CHASSIS
8H20
8H20U
8H22

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3924 MEADE ST.
DENVER, COLORADO

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